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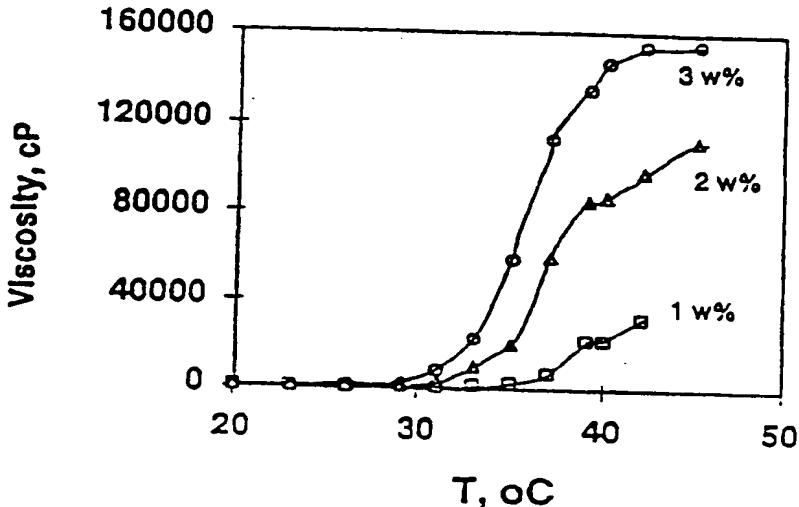
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(71) Applicant (for all designated States except US):	MEDLOGIC GLOBAL CORPORATION [US/US]; 4815 List Drive, Colorado Springs, CO 80919 (US).			
(72) Inventors; and			Published	
(75) Inventors/Applicants (for US only):	RON, Eyal, S. [US/US]; 7 Coach Road, Lexington, MA 02173 (US). HAND, Barry, J. [US/US]; 145 Butternut Hollow, Acton, MA 01718 (US). BROMBERG, Lev, S. [US/US]; 17 Sherwood Road, Swampscott, MA 01907 (US). KEARNEY, Marie [US/US]; 342 Faneuil Street #1, Brighton, MA 02135 (US). SCHILLER, Matthew, E. [US/US]; 23C Sagamore Way, Waltham, MA 02154 (US). AHEARN, Peter, M. [US/US];		With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.	

(54) Title: COMPOSITIONS FOR COSMETIC APPLICATIONS

(57) Abstract

A cosmetic composition is described having a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous-based medium.



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COMPOSITIONS FOR COSMETIC APPLICATIONS

This application is a continuation-in-part application of copending application
5 U.S.S.N. 60/034,805 filed January 2, 1997, and entitled "Responsive Polymer
Networks and Methods of Their Use", which is a continuation-in-part application of
copending application PCT/US96/10376 filed June 14, 1996, designating the United
States, and entitled "Responsive Polymer Networks and Methods of Their Use", which
is a continuation-in-part application of copending application U.S.S.N. 08/580,986 filed
10 January 3, 1996, and entitled "Responsive Polymer Networks and Methods of Their
Use", each of which is incorporated entirely by reference.

Field of the Invention

The present invention relates to a cosmetic composition useful in a variety of
15 topical and personal care products, including treatments of disorders and imperfections
of the skin or other areas of the body. More particularly, the present invention is
directed to a cosmetic composition comprising a poloxamer:poly(acrylic acid)
polymer network that can be designed to reversibly gel over a wide range of
conditions to provide a composition having a controllable range of viscosities, making
20 it useful in a variety of cosmetic and personal care applications.

Background of the Invention

Many examples are known of cosmetic compositions intended for treatment of
the skin or elsewhere on the body, where it is desired to have certain properties of
25 viscosity. Hydrogels, such as cellulosics, have been included as thickeners in cosmetic
compositions. A hydrogel is a polymer network which absorbs a large quantity of
water without the polymer dissolving in water. The hydrophilic areas of the polymer
chain absorb water and form a gel region. The extent of gelation depends upon the
volume of the solution which the gel region occupies.

30 Reversibly gelling solutions are known in which the solution viscosity increases

and decreases with an increase and decrease in temperature, respectively. Such reversibly gelling systems are useful wherever it is desirable to handle a material in a fluid state, but performance is preferably in a gelled or more viscous state.

A known material with these properties is a thermal setting gel using block copolymer polyols, available commercially as Pluronic® polyols (BASF, Ludwigshafen, Germany), which is described in U.S. Patent No. 4,188,373. Adjusting the concentration of the polymer gives the desired liquid-gel transition. However, concentrations of the polyol polymer of at least 18-20 % by weight are needed to produce a composition which exhibits such a transition at commercially or 10 physiologically useful temperatures. Also, solutions containing 18-20 % by weight of responsive polymer are typically very viscous even in the "liquid" phase, so that these solutions can not function under conditions where low viscosity, free-flowing is required prior to transition. In addition, these polymer concentrations are so high that the material itself may cause unfavorable interactions during use.

Another known system which is liquid at room temperature, but forms a semi-solid when warmed to about body temperature is formed from tetrafunctional block polymers of polyoxyethylene and polyoxypropylene condensed with ethylenediamine, commercially available as Tetronic® polyols. These compositions are formed from approximately 10% to 50% by weight of the polyol in an aqueous medium. See, U.S. 20 Patent No. 5,252,318.

Joshi *et al.* in U.S. Patent No. 5,252,318 reports reversible gelling compositions which are made up of a physical blend of a pH-sensitive gelling polymer (such as a cross-linked poly(acrylic acid) and a temperature-sensitive gelling polymer (such as methyl cellulose or block copolymers of poly(ethylene glycol) and poly(propylene glycol)). In compositions including methylcellulose, 5- to 8-fold increases in viscosity are observed upon a simultaneous change in temperature and pH for very low methylcellulose levels (1-4% by weight). See, Figs. 1 and 2 of Joshi *et al.* In compositions including Pluronic® and Tetronic® polyols, commercially available forms of poly(ethylene glycol)/poly(propylene glycol) block copolymers, significant 25 increases in viscosity (5- to 8-fold) upon a simultaneous change in temperature and pH 30

are observed only at much higher polymer levels. See, Figs. 3-6 of Joshi *et al.*

Hoffman *et al.* in WO 95/24430 disclose block and graft copolymers comprising a pH-sensitive polymer component and a temperature-sensitive polymer component. The block and graft copolymers are well-ordered and contain regularly repeating units of the pH-sensitive and temperature-sensitive polymer components. The copolymers are described as having a lower critical solution temperature (LCST), at which both solution-to-gel transition and precipitation phase transition occur. Thus, the transition to a gel is accompanied by the clouding and opacification of the solution. Light transmission is reduced, which may be undesirable in many applications, where the aesthetic characteristics of the composition are of some concern.

Thus, the known systems which exhibit reversible gelation are limited in that they require large solids content and/or in that the increase in viscosity less than 10-fold. In addition, some known systems exhibit an increase in viscosity which is accompanied with the undesirable opacification of the composite.

15

Summary of the Invention

It is an object of the present invention to provide a cosmetic composition which includes a component capable of reversible gelation or viscosification.

It is a further object of the invention to provide a cosmetic composition which includes an ingredient capable of gelation or viscosification at very low solids content.

It is another object of the present invention to provide a cosmetic composition which possesses improved flow and gelation characteristics as compared to properties possessed by conventional reversible gelation compositions.

It is a further object of the invention to provide a polymer network composition for use in cosmetic compositions useful as a surfactant or emulsifier in the solubilization of additives and, in particular, hydrophobic additives.

It is a further object of the invention to provide a cosmetic composition which possesses the appropriate thickness, emolliency and cosmetic effect with a minimum of solids content.

30 It is a further object of the invention to provide a polymer network for use in

cosmetic compositions useful as a suspending agent for otherwise insoluble additives.

It is yet a further object of the present invention to provide a composition capable of solubilizing emulsions at elevated temperatures.

It is yet a further object of the invention to provide new and useful cosmetic 5 compositions incorporating the reversibly gelling polymer network composition of the present invention, which take advantage of its unique advantageous properties.

It is yet another object of the present invention to provide reversibly gelling polymer network compositions which are composed of biocompatible polymers.

These and other objects of the invention are achieved with a cosmetic 10 composition which incorporates a poloxamer:poly(acrylic acid) polymer network as a cosmetically acceptable carrier. The polymer network comprises a poloxamer component randomly bonded to a poly(acrylic acid), or P.A.A. component in an aqueous-based medium, the polymer network being capable of aggregating in response to an increase in temperature. The reverse thermal viscosifying 15 poloxamer:poly(acrylic acid) polymer network includes random covalent bonding between the poly(acrylic acid) component and the poloxamer component of the network. The polymer network may also include some unbound or "free" poloxamer or other additives which contribute to or modify the characteristic properties of the polymer composition.

In addition, the cosmetic composition includes a cosmetic agent selected to 20 provide a preselected cosmetic effect. By "cosmetic agent", as that term is used herein, it is meant that the additive imparts a cosmetic effect. A cosmetic effect is distinguishable from a pharmaceutical effect in that a cosmetic effect relates to the promoting bodily attractiveness or masking the physical manifestations of a disorder or 25 disease. In contrast, a pharmaceutic seeks to treat the source or symptom of a disease or physical disorder. It is noted however, that the same additives may have either a cosmetic or pharmaceutical effect, depending upon the amounts used and the manner of administration.

By "cosmetic" as that term is used herein, it is meant the cosmetic and

personal-care applications intended to promote bodily attractiveness or to cover or mask the physical manifestations of a disorder or disease. Cosmetics include those products subject to regulation under the FDA cosmetic guidelines, as well as sunscreen products, acne products, skin protectant products, anti-dandruff products, and deodorant and antiperspirant products.

By "gelation" or viscosification, as that term is used herein, it is meant a drastic increase in the viscosity of the polymer network solution. Gelation is dependent on the initial viscosity of the solution, but typically a viscosity increase in the range of preferably 2- to 100-fold, and preferably 5- to 50-fold, and more preferably 10- to 20-fold is observed in the polymer network which is used in the preparation of the cosmetic compositions of the invention. Such effects are observed in a simple polymer network solution and the effect may be modified by the presence of other components in the cosmetic composition.

By "reversibly gelling" as that term is used herein, it is meant that the process of gelation takes place upon an *increase* in temperature rather than a decrease in temperature. This is counter-intuitive, since it is generally known that solution viscosity *decreases* with an increase in temperature.

As used herein, "poloxamer" is a triblock copolymer derived from poly(ethylene glycol)-poly(propylene glycol)-poly(ethylene glycol) blocks. The poloxamer is capable of responding to a change in temperature by altering its degree of association and/or agglomeration. The aggregation may be in the form of micelle formation, precipitation, labile crosslinking or other factors. The poloxamer has the general formula of a triad ABA block copolymer, $(P_1)_a(P_2)_b(P_1)_a$, where P_1 = poly(ethylene glycol) and P_2 = poly(propylene glycol) blocks, where a is in the range of 10-50 and where b is in the range of 50-70.

The poly(acrylic acid) component includes poly(acrylic acid) and its salts. The poly(acrylic acid) supports and interacts with the poloxamer component so that a multi-material, responsive polymer network is formed. The interaction of the poloxamer and poly(acrylic acid) exhibits a synergistic effect, which magnifies the effect of the poloxamer component in viscosifying and/or gelling the solution.

The novel interaction between the constituent polymers components of the polymer network permits formation of gels at very low solids content. Gelation and/or viscosification is observed in aqueous solutions having about 0.01 to 20 wt% of the poloxamer component and about 0.01 to 20 wt% of the poly(acrylic acid) component.

5 A typical reversibly gelling polymer network may be comprised of less than about 4 wt% of total polymer solids (e.g., poloxamer and poly(acrylic acid)) and even less than 1 wt% total polymer solids while still exhibiting reverse thermal viscosification. Of course, the total solids content including additives of a reversibly gelling polymer network composition may be much higher. The viscosity of the gel increases at least 10 ten-fold with an increase in temperature of about 5°C at pH 7 and 1 wt% polymer. Viscosity increases may be even greater over a larger temperature range at pH 7 and 1% polymer network content.

The relative proportion of poloxamer and poly(acrylic acid) may vary dependent upon the desired properties of the polymer composition. In one 15 embodiment, the poloxamer is present in a range of about 1 to 20 wt% and the poly(acrylic acid) is present in a range about of 99 to 80 wt%. In another embodiment, the poloxamer component is present in a range of about 21 to 40 wt% and the poly(acrylic acid) component is present in a range of about 79 to 60 wt%. In another embodiment, the poloxamer component is present in a range of about 41 to 50 20 wt% and the poly(acrylic acid) component is present in a range of about 59 to 50 wt%. In another embodiment, the poloxamer component is present in a range of about 51 to 60 wt% and the poly(acrylic acid) component is present in a range of about 49 to 40 wt%. In yet another embodiment, the poloxamer component is present in a range of about 61 to 90 wt% and the poly(acrylic acid) component is present in a range of about 39 to 20 wt%. In another embodiment, the poloxamer component is 25 present in a range of about 81 to 99 wt% and the poly(acrylic acid) component is present in a range of about 19 to 1 wt%.

The poloxamer:poly(acrylic acid) polymer network described above is included in a cosmetic composition to improve the flow characteristics, thickness and other 30 properties of the composition. The composition includes additional cosmetic agents.

such as are needed for the cosmetic purpose of the composition. Additives also may be included to modify the polymer network performance, such as to increase or decrease the temperature of the liquid-to-gel transition and/or to increase or decrease the viscosity of the responsive polymer composition.

5 In one aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic compositions to impart thickening properties to the cosmetic composition at the use and/or application temperature. Such thickening properties include enhanced overall viscosity, as well as a desirable viscosity response with temperature. The polymer network may be useful as a thickener in pH ranges
10 where other thickeners are not effective.

In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic composition to stabilize and solubilize hydrophobic agents in the cosmetic composition. The polymer network may be included to increase emulsion stability. Many emulsions, i.e., suspension of small
15 droplets or particles of a first material in a second material, lose viscosity upon heating. As will be demonstrated herein, the poloxamer:poly(acrylic acid) polymer network retains its emulsifying properties even with temperature increase.

In addition, it may be included in the composition to impart emolliency to the composition. The composition may also act as a film-forming agent after it has been
20 applied to the skin. This film-forming agent may be used as a barrier to prevent water loss from the skin which contributes to the moisturization of the skin.

In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network may be included as an additive in cosmetic applications to prevent viscosity loss at elevated temperatures.

25

Brief Description of the Drawing

The invention is described with reference to the Drawing, which is presented for the purpose of illustration and is in no way intended to be limiting, and in which:

Figure 1 is a graph of viscosity vs. temperature for a 1 wt%, 2 wt% and 3 wt%
30 responsive polymer network aqueous composition of a poloxamer/poly(acrylic acid)

(1:1) at pH 7.0 measured at a shear rate of 0.44 sec⁻¹;

Figure 2 is a graph of viscosity vs. temperature for a 1 wt% poloxamer: poly(acrylic acid) polymer network composition demonstrating reversibility of the viscosity response;

5 Figure 3 shows the viscosity response of a 2 wt% poloxamer:poly(acrylic acid) polymer composition at various shear rates;

Figure 4 shows a viscosity response curve for a 2 wt% poloxamer: poly(acrylic acid) polymer network composition prepared with nominal mixing and stirring and prepared using high shear homogenization (8000 rpm, 30 min);

10 Figure 5 is a graph of viscosity vs. temperature for a 1 wt% poloxamer: poly(acrylic acid) polymer network composition at various pHs;

Figure 6 is a graph of viscosity vs. temperature for a 1 wt% poloxamer: poly(acrylic acid) polymer network composition with and without addition of 0.25 wt% KCl;

15 Figure 7 is a graph of viscosity vs. temperature for a 1 wt% poloxamer: poly(acrylic acid) polymer network composition with and without addition of 0.5 wt% acetamide MEA;

20 Figure 8 is a graph of viscosity vs. temperature for a 1 wt% poloxamer: poly(acrylic acid) polymer network composition without and with 5 wt%, 10 wt% and 20 wt% added ethanol, respectively;

Figure 9 is an illustration of a reversibly gelling polymer network used as an emulsifier and stabilizer for a hydrophobic agent;

25 Figure 10 is a schematic illustration of the poloxamer:poly(acrylic acid) polymer network below and above the transition temperature illustrating the aggregation of the hydrophobic poloxamer regions;

Figure 11 is a graph of viscosity vs. pH for a 1 wt% responsive polymer network aqueous composition of a poloxamer/poly(acrylic acid) (1:1) measured at a shear rate of 0.44 sec⁻¹;

30 Figure 12 is a plot of viscosity vs. temperature for (a) a 1 wt% responsive polymer network aqueous composition of Pluronic® F127 poloxamer/poly(acrylic acid)

(1:1) and (b) a 1 wt% physical blend of Pluronic® F127 poloxamer/poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate 0.22 sec⁻¹;

Figure 13 is a plot of viscosity vs. temperature for a 1 wt% responsive polymer network aqueous composition of Pluronic® F88 poloxamer/poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate 2.64 sec⁻¹;

Figure 14 is a graph of the viscosity vs. temperature effect for a responsive polymer network composition of 2 wt% Pluronic® P104 poloxamer/poly(acrylic acid) (1:1) in deionized water at pH 7.0 measured at shear rate of 22 sec⁻¹;

Figure 15 is plot of viscosity vs. temperature for a responsive polymer network composition of 2 wt% Pluronic® F123 poloxamer/poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate of 22 sec⁻¹;

Figure 16 is a plot of viscosity vs. temperature for 1 wt% made of series of poloxamers and poly(acrylic acid) (1:1) in deionized water at a shear rate of 132 sec⁻¹;

Figure 17 is a plot showing release of hemoglobin from a poloxamer/poly(acrylic acid) polymer network of the invention:

Figure 18 is a plot showing the release of lysozyme from the poloxamer/poly(acrylic acid) polymer complex of the invention:

Figure 19 is a plot showing release of insulin from a poloxamer/poly(acrylic acid) polymer network composition of the invention:

Figure 20 is a plot of viscosity vs. temperanure for a poloxamer/poly(acrylic acid) polymer network composition (a) before and (b) after sterilization by autoclave:

Figure 21 is a plot of viscosity vs. temperature for an oil-free moisturizing formulation prepared from (a) a responsive polymer network composition of the invention and (b) a conventional oil-in-water formulation;

Figure 22 is a plot of equilibrium solubility of estradiol (A, B) and progesterone (C, D) in aqueous solutions (pH 7) of Pluronic® F127 (A, C) and responsive polymer network (B, D) vs. temperature;

Figure 23 is a plot of the ratio of equilibrium solubilities of estradiol in responsive polymer network and water vs. polymer concentration in the responsive polymer network solutions:

Figure 24 is a plot of the effect of loading fluorescein on the onset of gelation of responsive polymer network vs. total polymer concentration in responsive polymer network solution (pH 7.0);

5 Figure 25 is a plot of the percentage of a) estradiol and b) progesterone release from responsive polymer network vs. time;

Figure 26 is a plot of the rate of progesterone release and macroscopic viscosity vs. polymer concentration;

Figure 27 is a plot of the percentage of progesterone release vs. polymer concentration in responsive polymer network and,

10 Figure 28 is a plot of the relative diffusivity of poly(styrene) latex particles in water and responsive polymer network.

Detailed Description of the Invention

The present invention is directed to a cosmetic composition comprising a
15 cosmetically acceptable carrier comprising a novel poloxamer:poly(acrylic acid)
polymer network. The polymer network functions as a temperature sensitive
thickening agent, and in addition possesses surfactant and emulsifying capabilities
which may be beneficial to the cosmetic composition. The polymer network
composition according to the invention includes a poloxamer component randomly
20 bonded to a poly(acrylic acid) component. The two polymer components may interact
with one another on a molecular level. The polymer network contains about 0.01-20
wt% each of poloxamer and poly(acrylic acid). Exemplary polymer network-
compositions range from about 1:10 to about 10:1 poloxamer:poly(acrylic acid).
Polymer network gel compositions which exhibit a reversible gelation at body
25 temperature (25-40°C) and/or at physiological pH (ca. pH 3.0-9.0) and even in basic
environments up to pH 13 (hair care) are particularly preferred for cosmetic
applications.

In one embodiment of the invention, a 1:1 poloxamer:poly(acrylic acid)
polymer network at appropriate pH exhibits flow properties of a liquid at about room
30 temperature, yet rapidly thickens into a gel consistency of at least about five times

greater, preferably at least about 10 times greater, and even more preferably at least about 30 times and up to 100 times greater, viscosity upon increase in temperature of about 10 °C and preferably about 5 °C. The reversibly gelling polymer network of the present invention exhibit gelation even at very low polymer concentrations. For

- 5 example, polymer network compositions at pH 7 comprising about 0.5 wt% poloxamer component and about 0.5 wt% PAA exhibits a significant increase in viscosity from a free-flowing liquid (50 cps) to a gel (6000 cps). The observed gelation takes place at low solids contents, such as less than 20 wt% or preferably less than about 10 wt%, or more preferably less than about 2.5 wt% or most preferably less than about 0.1 wt%.
10 Thus, only a small amount by weight of the polymer network need be incorporated into a cosmetic composition in order to provide the desired thickening or viscosifying effect.

The reverse viscosification effect at low polymer concentrations provides clear, colorless gels which are particularly well-suited to cosmetic applications. For example, 15 very little residue is formed upon dehydration which may be important in some applications, such as in topically applied cosmetics. An additional advantage of the polymer network of the invention is that it remains clear and translucent above and below the critical temperature or pH. These characteristics of the reversibly gelling polymer network make it well suited for use in cosmetic compositions.

- 20 The polymer network of the present invention technology may be added to cosmetic formulations to increase the thickness and viscosity of the composition. The poloxamer:poly(acrylic acid) polymer network possesses hydrophobic regions capable of aggregation. Unlike conventional thickeners, the aggregation of the polymer network of the present invention is temperature sensitive. Thus, the inventive polymer 25 network of the present invention may have a transition temperature (i.e. temperature of aggregation) above room temperature so that the cosmetic composition is of low viscosity at or below room temperature and is of high viscosity at or around body temperature (body temperature includes both surface and internal body temperature). Thus, a composition may be prepared at low temperatures while the polymer network 30 is in a low viscosity state. Mixing of ingredients under low viscosity is expected to be

easier, thus simplifying the manufacturing process. Yet, the resultant mixture would be of increased viscosity at use temperatures. As a further advantage, a cosmetic composition comprising poloxamer:poly(acrylic acid) polymer network may be spread thinly to allow for even application, due to its low viscosity at room temperature, but 5 will thicken and "fill" the skin contours upon warming up to body surface temperature.

In another aspect of the invention, the composition may be applied through a nozzle that provides high shear to reduce viscosity, yet the composition regains its viscosity after application to the skin. This contrasts with conventional formulations which permanently lose viscosity after being subjected to high shear.

10 In another aspect of the invention, the composition may be formulated and applied as a liquid, spray, semi-solid gel, cream, ointment, lotion, stick, roll-on formulation, mousse, pad-applied formulation, and film-forming formulation.

15 The poloxamer:poly(acrylic acid) polymer network may also be included in a cosmetic composition for use as a stabilizing, solubilizing or emulsifying agent for a hydrophobic component of the cosmetic formulation. The strong hydrophilic regions of the poloxamer resulting from aggregation and micelle formation create hydrophobic domains which may be used to solubilize and control release of hydrophobic agents. Similar micelle-based systems have been shown to protect trapped peptides against enzymatic degradation from surface enzymes.

20 The reversibly gelling polymer network of the present invention is a unique polymer composition designed to abruptly change its physical characteristics or the characteristics and properties of materials mixed therewith with a change in temperature. Without intending to be bound by any particular mechanism or chemical structure, it is believed that the structure of the polymer network involves a random bonding of the poloxamer onto the backbone of the poly(acrylic acid). A portion of the poloxamer which is present during the polymerization reaction which forms the poly(acrylic acid) is bonded to the backbone of the forming poly(acrylic acid) through hydrogen abstraction and subsequent reaction. See detailed discussion of the mechanism, below. The combination of the poly(acrylic acid) and randomly bonded 25 poloxamer gives the composition its unique properties. Any free poloxamer remaining 30

after polymerization of PAA remains associated with the random co-polymer, resulting in a miscible composition. Free poloxamer may also be present in the polymer network composition; however, its presence is not required in order to observe reverse thermal viscosification.

5 The poly(acrylic acid) may be linear, branched and/or crosslinked. Poly(acrylic acid) is capable of ionization with a change in pH of the solution. By ionization, as that term is used with respect to poly(acrylic acid), it is meant the formation of the conjugate base of the acrylic acid, namely acrylate. As used herein, poly(acrylic acid) includes both ionized and non-ionized versions of the polymer. Changes in ionic strength may be accomplished by a change in pH or by a change in salt concentration.
10 The viscosifying effect of the polymer network is partly a function of the ionization of the poly(acrylic acid); however, reverse thermal gelling may occur without ionization. Changes to the ionic state of the polymer causes the polymer to experience attractive (collapsing) or repulsive (expanding) forces. Where there is no need or desire for the
15 composition to be applied in a high viscosity state, it may be possible to prepare the composition as non-ionized poly(acrylic acid). The body's natural buffering ability will adjust the pH of the applied composition to ionize the poly(acrylic acid) and thereby develop its characteristic viscosity.

20 The poloxamer possesses regions of hydrophobic character, e.g., poly(propylene glycol) blocks, and hydrophilic character, e.g., poly(ethylene glycol) blocks. The poloxamer may be linear or branched. Suitable poloxamers include triad block copolymers of poly(ethylene glycol) and poly(propylene glycol) having the general formula $(P_1)_a(P_2)_b(P_1)_a$, where P_1 = poly(ethylene glycol) and P_2 = poly(propylene glycol) blocks, where a is in the range of 10-50 and where b is in the range of 50-70.
25 where poly(propylene glycol) represents the hydrophobic portion of the polymer and poly(ethylene glycol) represents the hydrophilic portion of the polymer. Pluronic® polymers (BASF) are commercially available for a in the range of 16 to 48 and b ranging from 54-62. One or more poloxamers may be used in the reversibly gelling polymer network composition of the present invention.

30 The reversibly gelling responsive polymer networks compositions of the present

invention are highly stable and do not exhibit any phase separation upon standing or upon repeated cycling between a liquid and a gel state. Samples have stood at room temperature for more than three months without any noticeable decomposition, clouding, phase separation or degradation of gelation properties. This is in direct
5 contrast to polymer blends and aqueous mixed polymer solutions, where phase stability and phase separation is a problem, particularly where the constituent polymers are immiscible in one another.

An example of the dramatic increase in viscosity and of the gelation of the reversibly gelling polymer network compositions of the invention is shown in Figure 1.
10 Figure 1 is a graph of viscosity vs. temperature for 1 wt%, 2 wt% and 3 wt% polymer network compositions comprising 1:1 poloxamer:poly(acrylic acid), hydrated and neutralized. The viscosity measurements were taken on a Brookfield viscometer at a shear rate of 0.44 sec⁻¹ at pH 7.0. All solutions had an initial viscosity of about 1080 cP and exhibited a dramatic increase in viscosity to gel point at about 35°C. This is
15 not typical of all polymer network compositions since polymerization condition will affect initial viscosity. Final viscosities were approximately 33,000 cP, 100,000 cP and 155,000 cP for the 1 wt%, 2 wt% and 3 wt% compositions, respectively. This represents viscosity increases of about 30-, 90- and 140-fold, respectively. This effect is entirely reversible. Upon cooling, the composition regains its initial viscosity. This
20 is demonstrated in Figure 2, where a 1 wt% poloxamer:poly(acrylic acid) composition is warmed through the transition temperature up to 35 °C (simple curve), cooled to room temperature (24 °C, ticked curve) and then warmed again to up above the transition temperature (open box curve). The viscosity response was virtually identical in all three instances.

25 As would be expected with a non-Newtonian system, the solution viscosity differs with different shear rates. Figure 3 shows the viscosity response of a 2 wt% poloxamer:poly(acrylic acid) polymer composition at various shear rates. The viscosity response is consistent between 24 °C and 34 °C; however, the final viscosity is reduced with increasing shear rate.

30 However, unlike many prior art hydrogels, e.g., carbomers, the

poloxamer:poly(acrylic acid) polymer network composition does not permanently loose viscosity after being subjected to high shear conditions. The poloxamer:poly(acrylic acid) polymer network composition remains unaffected by such shear conditions as homogenization. Figure 4 compares the viscosity response curve of a 2 wt% poloxamer:poly(acrylic acid) polymer composition prepared with nominal mixing (simple lime) and stirring with that of a polymer composition of similar composition prepared using high shear homogenization designated by a ticked line (8000 rpm, 30 min). No significant decrease in viscosity is observed.

A number of factors influence the viscosity and transition temperature of the composition. The more important factors include polymer concentration, pH and presence and nature of additives.

The effect of pH on the viscosity of reversibly gelling polymer networks is shown in Figure 5. Increasing pH from the starting pH has a lesser effect on the viscosity than decreasing the pH. This may relate to the extent of ionization of the poly(acrylic acid) component of the polymer network as discussed above. This may be clearly seen in Figure 5 when comparing the viscosity response of a 1 wt% poloxamer:poly(acrylic acid) polymer composition at pH 5 and pH 11. Satisfactory viscosities can be obtained at high pHs indicating the potential value of the reversibly gelling polymer network in products such as depilatories, hair straighteners and hair relaxers.

The responsive polymer network may also include additives for influencing the performance of the polymer composition, such as the transition temperature and the viscosity of the polymer composition above the transition temperature. The following list is not intended to be exhaustive but rather illustrative of the broad variety of additives which can be used.

These materials include solvents (e.g., 2-propanol, ethanol, acetone, 1,2-pyrrolidinone, N-methylpyrrolidinone), salts (e.g., calcium chloride, sodium chloride, potassium chloride, sodium or potassium phosphates, borate buffers, sodium citrate), preservatives (benzalkonium chloride, phenoxyethanol, sodium hydroxymethylglycinate, ethylparaben, benzoyl alcohol, methylparaben, propylparaben,

butylparaben, Germaben II), humectant/moisturizers (acetamide MEA, laurimide MEA, hydrolyzed collagen, mannitol, panthenol, glycerin), lubricants (hyaluronic acid, mineral oil, PEG-60-lanolin, PPG-12-PEG-50-lanolin, PPG-2 myristyl ether propionate) and surfactants.

Surfactants may be divided into three classes: cationic, anionic, and nonionics. An example of a cationic surfactant used is ricinoleamidopropyl ethyldimonium ethosulfate (Lipoquat R). Anionic surfactants include sodium dodecyl sulfate and ether sulfates such as Rhodapex CO-436. Nonionic surfactants include Surfynol CT-111, TG, polyoxyethylene sorbitan fatty acid esters such as Tween 65 and 80, sorbitan fatty acid esters such as Span 65, alkylphenol ethoxylates such as Igepal CO-210 and 430, dimethicone copolyols such as Dow Corning 190, 193, and Silwet L7001.

The addition of polymers has been studied including xanthan gum, celluloses such as hydroxyethylcellulose (HEC), carbomethoxycellulose (CMC), lauryldimonium hydroxypropyl oxyethyl cellulose (Crodacel QL), hydroxypropylcellulose (HPC), and hydroxypropylmethylcellulose (HPMC), poly(acrylic acid), cyclodextrins, methyl acrylamido propyl trimmonium chloride (MAPTAC), polyethylene oxide, polyvinylpyrrolidone, polyvinyl alcohol, and propylene oxide/ethylene oxide random copolymers. Poloxamers may also be used as additives. Examples include both the Pluronic® polyols having an $(P_1)_a(P_2)_b(P_1)_a$ structure such as Pluronic® F38, L44, P65, F68, F88, L92, P103, P104, P105, F108, L122 and F127, as well as the reverse Pluronic® R series $(P_2)_a(P_1)_b(P_2)_a$ structure such as Pluronic® 17R2 and 25R8. Other miscellaneous materials include propylene glycol, urea, triethanolamine, alkylphenol ethoxylates (Iconol series), and linear alcohol alkoxylates (Plurafac series).

Additives affect the viscosity of the compositions differently depending upon the nature of the additive and its concentration. Some additives will affect the initial or final viscosity, whereas others will affect the temperature range of the viscosity response, or both.

Potassium chloride and acetamide MEA are two examples of additives which decrease the final viscosity of the composition (see, Example 30). KCl (0.25%) added to a 1 wt% reversibly gelling polymer composition reduces the viscosity by about 3000

cps. See, Figure 6. The humectant, acetamide MEA, lowers the viscosity of a 1 wt% solution by approximately 1,500 cps (see, Figure 7).

Glycerin, ethanol and dimethicone copolymer have been shown to affect the temperature range over which the viscosity response occurs. Glycerin shifts the 5 transition temperature to a slightly lower range from an initial 24-34 °C to about 24-30 °C, but does not affect the final viscosity (see, Example 44). The effect of ethanol on the viscosity is different at different concentration levels. At 5 wt% and 10 wt% added ethanol, the transition temperature is shifted to lower ranges, e.g., 24-29 °C and 10 20-29 °C, respectively. At 20 wt% added ethanol, the composition not only exhibits a lowering of the transition temperature, but also a marked increase in initial and final viscosity. See, Figure 8. Dimethicone copolymer (1 wt%) also changed the transition temperature, but in this instance the transition temperature range was raised to 28-41 °C. Thus, proper selection of additives permits the formulator to adjust the transition temperature to various ranges.

15 Those skilled in the art will appreciate that the polymer network compositions of the present invention may be utilized for a wide variety of cosmetic and personal care applications. To prepare a cosmetic composition, an effective amount of cosmetically active agent(s) which imparts the desirable cosmetic effect is incorporated into the reversibly gelling polymer network composition of the present invention.

20 Preferably the selected agent is water soluble, which will readily lend itself to a homogeneous dispersion throughout the reversibly gelling polymer network composition; however, the polymer network has been demonstrated to significantly solubilize or suspend hydrophilic agents in order to improve formulation homogeneity (see, Example 36). It is also preferred that the agent(s) is nonreactive with the 25 polymer network composition. For materials which are not water soluble, it is also within the scope of the invention to disperse or suspend powders or oil (lipophilic materials) throughout the polymer network composition. It will also be appreciated that some applications may require a sterile environment. It is contemplated as within the scope of the invention that the reversibly gelling polymer network compositions of 30 the present invention may be prepared under sterile conditions. An additional feature

of the reversibly gelling polymer composition is that is prepared from constituent polymers that have known accepted toxicological profiles.

The poloxamer:poly(acrylic acid) polymer network has been evaluated under Good Laboratory Practice (GLP) standard protocols known in the art for toxicity in animal models and found to exhibit no toxic effects. The results of the toxicity study are summarized in the following Table 1. The non-toxicity of the polymer network makes it an ideal candidate for use in cosmetic compositions.

Table 1. Toxicity data for 6% poloxamer:poly(acrylic acid) solution at pH 7.

Reaction testes	mode of testing	results
Skin sensitization	guinea pig - topical	not a sensitizer
eye irritation	rabbit eye instillation	negative
primary dermal irritation	rabbit - topical	very slight edema (1 on a scale of 1-8)
acute dermal toxicity	rat - single dose (2g/kg)	no toxicity
acute oral toxicity	rat - single dose (5g/kg)	no toxicity
AMES test		negative

Exemplary cosmetic and personal care applications, for which the reversibly gelling polymer network composition may be used include, but are not limited to, baby products, such as baby shampoos, lotions, powders and creams; bath preparations, such as bath oils, tablet and salts, bubble baths, bath fragrances and bath capsules; eye makeup preparations, such as eyebrow pencil, eyeliner, eye shadow, eye lotion, eye makeup remover and mascara; fragrance preparations, such as colognes and toilet waters, powders and sachets; noncoloring hair preparations, such as hair conditioner, hair spray, hair straighteners, permanent waves, rinses shampoos, tonics, dressings and other grooming aids; color cosmetics; hair coloring preparations such as hair dye, hair tints, hair shampoos, hair color sprays, hair lighteners and hair bleaches; makeup preparations such as face powders, foundations, leg and body paints, lipstick, makeup bases, rouges and makeup fixatives; manicuring preparations such as basecoats and

undercoats, cuticle softeners, nail creams and lotions, nail extenders, nail polish and enamel, and nail polish and enamel remover; oral hygiene products such as dentrifices and mouthwashes; personal cleanliness, such as bath soaps and detergents, deodorants, douches and feminine hygiene product; shaving preparations such as aftershave lotion, 5 beard softeners, men's talcum, shaving cream, shaving soap and preshave lotions; skin care preparations such as cleansing preparations, skin antiseptics, depilatories, face and neck cleansers, body and hand cleansers, foot powders and sprays, moisturizers, night preparations, paste masks, and skin fresheners; and suntan preparations such as suntan creams, gels and lotions, indoor tanning preparations.

10 Preparation of the above-named cosmetic compositions and others may be accomplished with reference to any of the cosmetic formulation guidebooks and industry journals which are available in the cosmetic industry. These references supply standard formulations which may be modified by the addition or substitution of the reversible viscosifying polymer network of the present invention into the formulation. 15 Suitable guidebooks include Cosmetics and Toiletries Magazine, Vol. 111 (March, 1996); Formulary: Ideas for Personal Care; Croda Inc. Parsippany, NJ (1993); and Cosmeticon: Cosmetic Formulary, BASF, which are hereby incorporated in their entirety by reference.

20 The cosmetic composition may be in any form. Suitable forms include but are not limited to lotions, creams, sticks, roll-ons formulations, mousses, aerosol sprays, pad-applied formulations, and film-forming formulations.

25 As those skilled in the art will appreciate, the foregoing list is exemplary only. Because the reversibly gelling polymer network composition of the present invention is suited for application under a variety of physiological conditions, a wide variety of cosmetically active agents may be incorporated into and administered from the polymer network composition. In addition to the poloxamer:poly(acrylic acid) polymer network, additional cosmetically acceptable carriers may be included in the composition, such as by way of example only, emollients, surfactants, humectants, powders and other solvents. By way of example only, the cosmetic composition also 30 may include additional components, which serve to provide additional aspects of the

cosmetic affect or to improve the stability and/or administration of the cosmetic. Such additional components include, but are not limited to, preservatives, abrasives, acidulents, antiacne agents, anti-aging agents, antibacterials, anticaking, anticaries agents, anticellulites, antidandruff, antifungal, anti-inflammatories, anti-irritants, 5 antimicrobials, antioxidants, astringents, antiperspirants, antiseptics, antistatic agents, astringents, binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents, conditioners, deodorants, dipilatories, detergents, dispersants, emollients, emulsifiers, enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glosser, hair 10 conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers, powders, propellant, protein, refatting agents, sequestrant, silicones, skin calming agents, skin cleansers, skin conditioners, skin healing, skin lightening agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing 15 agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or fragrances. Suitable materials which serve the additive functions listed here are well known in the cosmetic industry. A listing of the additive function and materials suitable for incorporation into the cosmetic composition may be found in 20 Appendix A, which is appended hereto at the end of the specification. Further information may be obtained by reference to The Cosmetic Bench Handbook, Cosmetics & Toiletries; C.C. Urbano, editor, Allured Publ. Corp., 1996, which is hereby incorporated in its entirety by reference.

A brief description of some preferred additives and cosmetically active agents 25 follows. The compositions of the invention include a safe and effective amount of a cosmetically active agent. "Safe and effective", as it is used herein, means an amount high enough to significantly positively modify the condition to be treated or the cosmetic effect to be obtained, but low enough to avoid serious side effects.

Preservatives can be desirably incorporated into the cosmetic compositions of 30 the invention to protect against the growth of potentially harmful microorganisms.

Suitable preservatives include, but are not limited to, alkyl esters of para-hydroxybenzoic acid, hydantoin derivatives, parabens, propionate salts, triclosan tricarbanilide, tea tree oil, alcohols, farnesol, farnesol acetate, hexachlorophene and quaternary ammonium salts, such as benzalconjуре, and a variety of zinc and aluminum salts. Cosmetic chemists are familiar with appropriate preservatives and may select those which provide the required product stability. Preservatives are preferably employed in amounts ranging from about 0.0001% to 2% by weight of the composition.

Emollients can be desirably incorporated into the cosmetic compositions of the invention to provide lubricity to the formulation. Suitable emollients may be in the form of volatile and nonvolatile silicone oil, highly branched hydrocarbons and synthetic esters. Amounts of emollients may be in the range of about 0.1-30 wt%, and preferably about 1-20 wt%. By way of example only, suitable silicones include cyclic or linear polydimethylsiloxanes, polyalkylsiloxanes, polyalkylarylsiloxanes and polyether siloxanes. By way of example only, suitable ester emollients include alkenyl esters of fatty acids, polyhydric alcohols, such as ethylene glycol mono and di-fatty acid esters, polyethylene glycol and the like, ether-esters, such as fatty acid esters of ethoxylated fatty alcohols, wax esters, such as beeswax, spermaceti, myristyl myristate and stearyl stearate, and sterol esters, such as cholesterol fatty acids.

A variety of oily emollients may be employed in the compositions of this invention. These emollients may be selected from one or more of the following classes: 1. Triglyceride esters such as vegetable and animal fats and oils. Examples include castor oil, cocoa butter, safflower oil, cottonseed oil, corn oil, olive oil, cod liver oil, almond oil, avocado oil, palm oil, sesame oil, squalene, Kikui oil and soybean oil; 2. Acetoglyceride esters, such as acetylated monoglycerides; 3. Ethoxylated glycerides, such as ethoxylated glyceryl monostearate; 4. Alkyl esters of fatty acids having 10 to 20 carbon atoms, such as, methyl, isopropyl, and butyl esters of fatty acids, and including hexyl laurate, isohexyl laurate, isohexyl palmitate, isopropyl palmitate, decyl oleate, isodecyl oleate, hexadecyl stearate, decyl stearate, isopropyl isostearate, diisopropyl adipate, diisohexyl adipate, dihexyldecyl adipate,

diisopropyl sebacate, lauryl lactate, myristyl lactate, and cetyl lactate; 5. alkenyl esters of fatty acids having 10 to 20 carbon atoms, such as oleyl myristate, oleyl stearate, and oleyl oleate and the like; 6. fatty acids having 10 to 20 carbon atoms, such as pelargonic, lauric, myristic, palmitic, stearic, isostearic, hydroxystearic, oleic, linoleic, ricinoleic, arachidic, behenic, and erucic acids and the like; 7. fatty alcohols having 10 to 20 carbon atoms, such as, lauryl, myristyl, cetyl, hexadecyl, stearyl, isostearyl, hydroxystearyl, oleyl, ricinoleyl, behenyl, erucyl, and 2-octyl dodecanyl alcohols are examples of satisfactory fatty alcohols and the like, 8. fatty alcohol ethers, such as ethoxylated fatty alcohols of 10 to 20 carbon atoms including the lauryl, cetyl, stearyl, isostearyl, oleyl, and cholesterol alcohols, having attached thereto from 1 to 50 ethylene oxide groups or 1 to 50 propylene oxide groups; 9. ether-esters such as fatty acid esters of ethoxylated fatty alcohols; 10. Lanolin and derivatives, such as lanolin, lanolin oil, lanolin wax, lanolin alcohols, lanolin fatty acids, isopropyl lanolate, ethoxylated lanolin, ethoxylated lanolin alcohols, ethoxylated cholesterol, propoxylated lanolin alcohols, acetylated lanolin alcohols, lanolin alcohols linoleate, lanolin alcohols ricinoleate, acetate of lanolin alcohols ricinoleate, acetate of ethoxylated alcohols-esters, hydrogenolysis of lanolin, ethoxylated hydrogenated lanolin, ethoxylated sorbitol lanolin, and liquid and semisolid lanolin absorption bases and the like; 11. polyhydric alcohol esters, such as, ethylene glycol mono and di-fatty acid esters, 20 diethylene glycol mono-and di-fatty acid esters, polyethylene glycol (200-6000) mono- and di-fatty acid esters, propylene glycol mono- and di-fatty acid esters, polypropylene glycol 2000 monooleate, polypropylene glycol 2000 monostearate, ethoxylated propylene glycol monostearate, glyceryl mono- and di-fatty acid esters, polyglycerol polyfatty esters, ethoxylated glyceryl monostearate, 1,2-butylene glycol monostearate, 25 1,2-butylene glycol distearate, polyoxyethylene polyol fatty acid ester, sorbitan fatty acid esters, and polyoxyethylene sorbitan fatty acid esters are satisfactory polyhydric alcohol esters; 12. wax esters such as beeswax, spermaceti, myristyl myristate, stearyl stearate; 13. beeswax derivatives, e.g. polyoxyethylene sorbitol beeswax; 14. vegetable waxes including carnauba and candelilla waxes; 15. phospholipids such as 30 lecithin and derivatives; 16. sterol including cholesterol and cholesterol fatty acid

esters; 17. amides such as fatty acid amides, ethoxylated fatty acid amides, solid fatty acid alkanolamides.

Humectants may be added to the composition to increase the effectiveness of the emollient, to reduce scaling, to stimulate removal of built-up scale and improve skin feel. By way of example only, suitable humectants include polyhydric alcohols, such as glycerol, polyalkylene glycols, alkylene polyols their derivatives, propylene glycol, dipropylene glycol, polypropylene glycol, polyethylene glycol, sorbitol, hydroxypropyl sorbitol, hexylene glycol, 1,3-butylene glycol, 1,2,6-hexanetriol, ethoxylated glycerol, propoxylated glycerol and the like. The amount of humectant may be in the range of about 0.5-30 wt% and preferably between 1-15 wt%.

In topical skin care applications, a variety of active substances may be advantageously employed. By way of example only suitable active agents which may be incorporated into the cosmetic composition include anti-aging active substances, anti-wrinkle active substances, hydrating or moisturizing or slimming active substances, depigmenting active substances, substances active against free radicals, anti-irritation active substances, sun protective active substances, anti-acne active substances, firming-up active substances, exfoliating active substances, emollient active substances, and active substances for the treating of skin disorders such as dermatitis and the like.

By way of example only, in the case of hydration, one or more moisturizers may be used, such as glycerin or urea, in combination with one or more precursor agents for the biosynthesis of structural proteins, such as hydroxyproline, collagen peptides and the like.

By the way of example only, in case of slimming, at least one ketolytic agent or an alpha-hydroxyacid such as salicylic acid or 5-n-octanoic salicylic acid may be used in combination with at least one liporegulating agent such as caffeine.

By way of example only, in the case of depigmentation, at least one keratolytic agent is used in combination with a depigmenting agent such as hydroquinone, tyrosinase inhibitor (kasic acid), ascorbic acid, kojic acid and sodium metabisulfite and the like.

By way of example only, in the case of protection against free radical agents, vitamin E (against COO⁻ radicals), superoxide dismutase (against O₂⁻ free radicals) and sugar and caffeine (against OH⁻ free radicals).

5 By way of example only, in the case of anti-aging, moisturizers, sunscreens, alpha-hydroxyacids, salicylic acid or surface restructuring agents may be used in combination with enzymes for the repair of DNA, vascular protective agents or phospholipids rich in oligoelements and polyunsaturated fatty acids.

10 By way of example only, in the case of anti-acne agents, keratolytics, such as salicylic acid, sulfur, lactic acid, glycolic, pyruvic acid, urea, resorcinol and N-acetylcysteine, and retinoids, such as retinoic acid and its derivatives may be used.

15 By way of example only, in the case of anti-inflammation, non-steroidal anti-inflammatory agents (NSAIDS) may be used, such as propionic acid derivatives, acetic acid, fenamic acid derivatives, biphenylcarboxylic acid derivatives, oxicams, including but not limited to aspirin, acetaminophen, ibuprofen, naproxen, benoxaprofen, flurbiprofen, fenbufen, ketoprofen, indoprofen, pirprofen, carprofen, and bucloxic acid and the like.

20 By way of example only, in the case of antibiotics and antimicrobials may be included in the composition of the invention. Antimicrobial drugs preferred for inclusion in compositions of the present invention include salts of β-lactam drugs, quinolone drugs, ciprofloxacin, norfloxacin, tetracycline, erythromycin, amikacin, triclosan, doxycycline, capreomycin, chlorhexidine, chlorotetracycline, oxytetracycline, clindamycin, ethambutol, hexamidine isethionate, metronidazole, pentamidine, gentamicin, kanamycin, lineomycin, methacycline, methenamine, minocycline, neomycin, netilmicin, paromomycin, streptomycin, tobramycin, miconazole and amanfadine and the like.

25 By way of example only, in the case of sunscreen protection, suitable agents include 2-ethylhexyl p-methoxycinnamate, 2-ethylhexyl N,N-dimethyl-p-aminobenzoate, p-aminobenzoic acid, 2-phenyl p-methoxycinnamate, 2-ethylhexyl octocrylene, oxybenzone, homomenthyl salicylate, octyl salicylate, 4,4'-methoxy-t-butylbibenzoylmethen, 4-isopropyl dibenzoylmethane, 3-benzylidene camphor, 3-(4-

methylbenzylidene) camphor, titanium dioxide, zinc oxide, silica, iron oxide, and mixtures thereof and the like. The sunscreening agents disclosed therein have, in a single molecule, two distinct chromophore moieties which exhibit different ultra-violet radiation absorption spectra. One of the chromophore moieties absorbs predominantly in the UVB radiation range and the other absorbs strongly in the UVA radiation range. These sunscreening agents provide higher efficacy, broader UV absorption, lower skin penetration and longer lasting efficacy relative to conventional sunscreens. Generally, the sunscreens can comprise from about 0.5% to about 20% of the compositions useful herein. Exact amounts will vary depending upon the sunscreen chosen and the desired Sun Protection Factor (SPF). SPF is a commonly used measure of photoprotection of a sunscreen against erythema.

By way of example only, in the case of sunless tanning agents include, dihydroxyacetone, glyceraldehyde, indoles and their derivatives, and the like.

The composition may include cleansing surfactants. Cleansing surfactants are cationic, anionic, amphoteric or non-ionic surfactants which are water-soluble and produce a consumer-acceptable amount of foam. Nonionic surfactants are well-known materials and have been used in cleansing compositions. Therefore, suitable nonionic surfactants include, but are not limited to, compounds in the classes known as alkanolamides, block copolymers of ethylene and propylene, ethoxylated alcohols, ethoxylated alkylphenols, alkyl polyglycosides and mixtures thereof. In particular, the nonionic surfactant can be an ethoxylated alkylphenol, i.e., a condensation product of an alkylphenol having an alkyl group containing from about 6 to about 12 carbon atoms in either a straight chain or branched chain configuration with ethylene oxide, the ethylene oxide being present in an amount equal to at least about 8 moles ethylene oxide per mole of alkylphenol. Examples of compounds of this type include nonylphenol condensed with about 9.5 moles of ethylene oxide per mole of phenol; dodecylphenol condensed with about 12 moles of ethylene oxide per mole of phenol; dinonylphenol condensed with about 15 moles of ethylene oxide per mole of phenol; octylphenol condensed with about ten moles of ethylene oxide per mole of phenol; and diisooctyl phenol condensed with about 15 moles of ethylene oxide per mole of

phenol.

A wide variety of acids, bases, buffers, and sequestrants can be utilized to adjust and/or maintain the pH and ionic strength of the compositions useful in the instant invention. Materials useful for adjusting and/or maintaining the pH and/or the 5 ionic strength include sodium carbonate, sodium hydroxide, hydrochloric acid, phosphoric acid, sulfuric acid, acetic acid, sodium acetate, sodium hydrogen phosphate, sodium dihydrogen phosphate, citric acid, sodium citrate, sodium bicarbonate, triethanolamine, EDTA, disodium EDTA, tetrasodium EDTA, and the like.

The polymer network may be useful as a solubilization agent in cosmetic and 10 personal care applications. A self-assembling system comprising the reversibly gelling polymer network exhibits thermogelation, pH sensitivity, and the ability to solubilize hydrophobic agents in aqueous media. When poloxamer is copolymerized with poly(acrylic acid) (PAA) according to the invention, the resulting copolymer network is bioadhesive and can be applied in a number of therapies. The materials described in 15 this invention combine "reverse" thermoviscosification mucoadhesion, solubilization of hydrophobic and difficult to manage moieties, easy formulation, and protection of agents from degradation to provide a superior medium for cosmetic and personal care products.

The reversible viscosification of the polymer network at elevated temperatures 20 makes the materials ideal for use as thickening agents in cosmetic and personal care products at any temperature above the transition. Another use of the "thickening" of solutions containing the polymer network as a thickener supplement in emulsions. Currently emulsifiers are often negatively effected by increased temperatures. An additive with reverse thermal viscosification properties, however, would react in 25 exactly the opposite way, increasing its ability to emulsify as it gained three-dimensional structure upon heating above its transition temperature.

In the applications where the reversibly gelling polymer composition can act as a surfactant, the polymer network will have the ability to act as a primary emulsifier without any (or with very little) addition of traditional surfactant. The responsive 30 polymer network will also act as a stabilizer for oil-soluble ingredients that would

conventionally need to be solubilized by oils in formulation. The hydrophobic portion of the polymer network (PPO) forms domains which act as reservoirs for an oil-soluble or hydrophobic additive, such as an oil droplet, as is illustrated in Figure 9. These two features of the material of the invention would enable it to be used as a 5 base in a cosmetic formulation that would be non-greasy due to lack of oils, such as petrolatum and mineral oil. The increase in viscosity above the transition temperature adds structure and yield value to the water phase and results in a highly stable emulsion.

Thus, poloxamer:poly(acrylic acid) polymer network compositions are valuable 10 materials in the formulation of cosmetic and personal care products. In particular, they may be useful as rheology modifiers, provide a cushioning effect on the skin, offer barrier properties and controlled release of actives. In addition, the polymer composition may serve as a surfactant and is compatible with most ingredients used in the cosmetic industry.

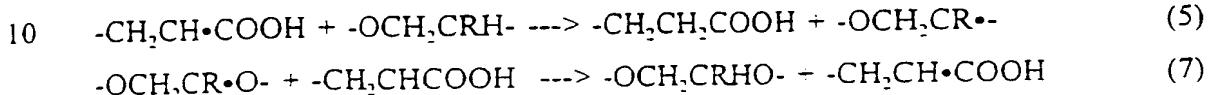
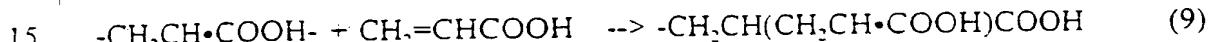
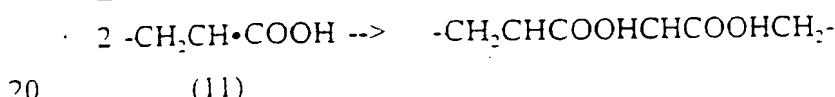
The above properties of the poloxamer:poly(acrylic acid) polymer network 15 provides a cosmetic composition that spreads evenly and smoothly and which leaves a lubricious feel to the skin. A sensory evaluation was conducted with seven random volunteers in order to determine the sensory effect of a cream formulation on the skin. An oil-free cosmetic formulation was prepared substantially as set forth in Example 20 33(b) and was compared to Nivea Oil Free, a product of Beiersdorf of Germany. Volunteers placed unmarked samples on the skin and evaluated the formulation based upon its feel and texture. The samples were rated on a scale of 1 (bad) to 5 (good). The oil-free cosmetic formulation of the present invention scored equally to the Nivea Oil Free moisturizing product. Both samples scored a 3.5 on the rating scale.

The observed thermal behavior of the reversibly gelling polymer network 25 suggests that the increase in viscosity is due to aggregation of the hydrophobic portion of the poloxamer at the transition temperature which, because of bonding with the poly(acrylic acid) component, serve as temporary cross-links which physically bridge adjacent chains of poly(acrylic acid) to provide a viscous gel-like extended polymer 30 structure. The aggregation process may be understood as occurring as shown in Figure

10, in which a backbone 20 represent poly(acrylic acid), a thin band 24 represents the hydrophobic poly(propylene) glycol region of the poloxamer and a thick band 26 represents the hydrophilic poly(ethylene glycol) region of the poloxamer. Below the transition temperature, the polymer network is randomly arranged, as is shown in
5 Figure 10(a). At or above the transition temperature, the hydrophobic regions 24 associate to form aggregations or micelles 28, as is shown in Figure 10(b). The association increases the effective molecular weight of the polymer network composition with the corresponding increase in viscosity.

A general method of making the poloxamer:PAA polymer network
10 compositions of the present invention comprises solubilization of the poloxamer in acrylic acid monomer, followed by polymerization of the monomer to PAA. Polymerization may be accomplished by addition of a polymerization initiator or by irradiation techniques. The initiator may be a free radical initiator, such as chemical free radical initiators and uv or gamma radiation initiators. Conventional free radical
15 initiators may be used according to the invention, including, but in no way limited to ammonium persulfate, benzoin ethyl ether, benzyl peroxide, 1,2'-azobis(2,4-dimethylpentanitrile) (Vazo 52) and azobisisobutyronitrile (AIBN). Initiation may also be accomplished using cationic or ionic initiators. Many variations of this methods will be apparent to one skilled in the art and are contemplated as within the scope of
20 the invention. For example, the poloxamer component may be dissolved in an acrylic acid/water mixture instead of pure monomer. It may be desirable to remove unreacted monomer and/or free poloxamer from the resultant polymer network. This may be accomplished using conventional techniques, such as, by way of example, dialysis or sohxlet extraction.

25 Without intending to be bound by a particular mechanism or structure, the following scheme represents a possible chemical mechanism for the formation of the system here described. These mechanisms are presented by way of explanation and are in no way limiting of the invention. It is contemplated that these or other mechanistic routes may in fact occur in the formation of the polymer network of the
30 present invention.

I. InitiationII. Hydrogen AbstractionIII. Chain TransferIV. PropagationV. Side Chain Branching Off AA BackboneVI. AA Branching off Poloxamer BackboneVII. Homogenous TerminationVIII. Heterogenous Termination with bonding of Pluronic to PAA

(12a)

The scheme for bonding of poloxamer to acrylic acid may involve initiation (eq 1), hydrogen abstraction from the propylene or ethylene moiety of the poloxamer (eq 3), and attachment to acrylic acid via addition across the unsaturated bond (eq 10). Propagation (eq 8) leads to the final PAA.

Alternatively, the mechanism may proceed by initiation according to eqs. (1) and (2), propagation to form PAA (eq.8), a chain transfer reaction to generate a reactive poloxamer moiety (eq. 5), followed by addition of the reactive poloxamer

moiety to the unsaturated bond of acrylic acid (eq. 10) and subsequent propagation of the PAA chain.

Thus the polymer network may include a plurality of poly(acrylic acid)) units bonded to a single poloxamer unit or, alternatively, a plurality of poloxamer units 5 bound to a single PAA backbone. Combinations of these alternatives are also a possibility.

Reverse phase polymerization may be used to prepare polymer network beads by dispersion of the poloxamer and acrylic acid monomer mixture in a nonpolar solvent such as hexane or heptane. The aggregating polymer/monomer solution is 10 dispersed with agitation in the nonpolar solvent in order to suspend droplets of the solution. Polymerization of the monomer is initiated by conventional means (i.e.. addition of a initiator or irradiation) in order to polymerize the monomer and form responsive polymer network beads. See, U.S.S.N. 08/276.532 filed July 18, 1995 and entitled "Useful Responsive Polymer Gel Beads" for further information on the 15 preparation of polymer gel beads, herein incorporated by reference. Such a method may be particularly desirable to provide a heat sink for the heat generated in the exothermic polymerization reaction.

The polymer network complexes and aqueous gelling solutions of the present invention may be understood with reference to the following examples, which are 20 provided for the purposes of illustration and which are in no way limiting of the invention.

Example 1 This example describes the synthesis of a polymer network and an aqueous responsive polymer network solution prepared using a triblock polymer of poly(ethylene glycol) and poly(propylene glycol), Pluronic® F27 polyol, and 25 poly(acrylic acid). This example also characterizes the gelation and the physical properties of the resultant polymer network.

Synthesis. Block copolymer of poly(propylene glycol) (PPG) and poly(ethylene glycol) (PEG) having triad ABA structure $(\text{PEG})_A(\text{PPG})_B(\text{PEG})_A$ (Pluronic® F127 NF polyol, Poloxamer 407 NF polyol, where "F" means Flakes, "12" 30 means $12 \times 300 = 3600$ - MW of the PPG section of the block copolymer, "7" PEG in

the copolymer is 70 wt%, and nominal molecular weight is 12,600) from BASF (3.0 g) was dissolved in 3.0 g acrylic acid (Aldrich). This represents a substantially 1:1 weight ratio of Pluronic® F127 polyol and poly(acrylic acid). The solution was deaerated by N₂ bubbling for 0.5 h and following addition of 100 ml of freshly prepared saturated solution of ammonium persulfate (Kodak) in deionized water was kept at 70 °C for 16 h resulting in a transparent polymer.

5 Viscosity measurements. A known amount of the resultant polymer was suspended in 100 ml deionized water into which NaOH was added. Following swelling for 3 days while stirring, the pH of the resulting fine suspension was adjusted 10 to 7. Samples of 15 ml each were taken, and pH in each vial was adjusted to desired value by addition of 1 M HCl or NaOH. Samples were then kept overnight and their viscosities were measured at different temperatures using Brookfield viscometer using either an SC4-18 or an SC4-25 spindle.

A control experiment was done with a physical blend of Pluronic® F127 polyol 15 and poly(acrylic acid) (MW 450,000) available from Aldrich. Pluronic® F127 polyol and poly(acrylic acid) were dissolved together in deionized water at 1 wt% total polymer concentration and the resultant solution was adjusted to pH 7, stirred and kept in refrigerator. The responsiveness of the polymer network composition and the physical blend to temperature and pH is illustrated in Figs. 1, 11 and 12. Figs. 1 and 20 2 clearly demonstrate that the synthetic route outlined above resulted in a polymer network system that is sensitive to pH and temperature of the environment. Note that the liquid-gel transition is very sharp, occurring over a very small temperature change or pH (see, Figure 11). Figure 12 is a viscosity vs. temperature graph comparing the 25 gelling characteristics of the responsive polymer network composition and the physical blend. The blend prepared by physically mixing of the triblock PEG/PPG/PEG polymer and poly(acrylic acid) did not exhibit viscosifying effect either as a function of temperature or pH.

It was generally observed that 0.5-5 wt% polymer network compositions made 30 of Pluronic® F127 polyol and poly(acrylic acid) viscosify at temperatures of around 30 °C and higher if pH is adjusted to 6 or higher. The gelling effect was observed in

polymer network compositions standing 3 months or longer. Repeated heating and cooling of responsive polymer network compositions did not cause deterioration of the polymer network or the gelling effect. Solutions of either Pluronic® F127 polyol or poly(acrylic acid) (1-5 w% in water, adjusted to pH 6 or higher) or physical blends of 5 the two lacked the reverse thermal gelling effects found for polymer network compositions.

Example 2. This example describes a standard operating procedure for the manufacture of the reversible gelling polymer network.

The procedure is based upon a 50 liter production. A NaOH solution was 10 prepared by dissolving 131.8 g NaOH pellets in 131.8 mL DI water (50% solution). The NaOH was allowed to dissolve completely. The NaOH solution will be used to convert a percentage of the acrylic acid to sodium acrylate in situ. Acrylic acid monomer (4 kg) is charged into a monomer feed tank and agitated at 250 rpm. NaOH is added slowly. The precipitate formed as the acrylic acid is neutralized to 15 sodium acrylate is allowed to dissolve. Pluronic® F127 (3.5 kg) is slowly added to the monomer feed tank. Pluronic® F127 is dissolved under continued agitation. Norpar 12 (a refined C-12 alkane) is added to the reaction vessel (37 L). The mixture is agitated at 100 rpm. Stabilizer solution of Ganex V-126 is prepared in 2L Norpar 12 and added to the reactor under agitation.

20 A reaction vessel was degassed using a nitrogen sparge introduced from the bottom of reactor and was continued throughout the reaction. Initiator (13.63 g Lauryl peroxide and 4.23 g Vazo 52 in 0.7 kg acrylic acid monomer) is introduced into the monomer solution. The monomer solution was transferred to the reaction vessel. Agitation was increased to 150 rpm. Nitrogen sparging continued for an additional 20 25 minutes and then heating began. Heating began at a rate of 0.5-1.0 °C/min up to 75 °C. The reaction began to exotherm at about 45-50 °C and is allowed to continue without cooling until a maximum is reached. It is then cooled to 75 °C using forced cooling. The reaction continued for 12 hours and was then cooled to 35 °C. The slurry was transferred into pails and the polymer beads were allowed to settle.

30 The slurry was filtered through Buchner Funnel with filter paper (11 µm pore

size) until the bulk of the Norpar had been removed from the beads. The beads were washed three times with heptane. The filtered beads were transferred to a Pyrex drying tray and spread on the tray in a uniform layer. The beads were dried under vacuum for 4 hours at 40-50 °C. The dried beads were analyzed as follows.

5 Elemental analysis. The elemental analysis was performed by Quantitative Technologies, Inc., Whitehouse, NJ using a Perkin Elmer 2400 CHN Elemental Analyzer. Analysis provided C (52.49%), H (7.50%), N (< 0.05%), the balance assumed to be oxygen (39.96%).

10 Thermal Gravimetric Analysis (TGA). The TGA method was performed by Massachusetts Material Research, Inc., West Boylston, MA using a Dupont TGA model 295. The assay was run using a temperature ramp from 30 to 500 °C/min. The resolution for the system was set to 4 (1.0 °C/min for all slope changes). The data was analyzed using the first derivative of the curve and using maxima and minima to mark transitions. The moisture content was also calculated in this manner. The first derivative yielded three maxima. The first transition (moisture) was 3.0% by weight. 15 the second transition was 14.0% by weight and the third was 67.02% by weight. Residue (15.98% remained).

15 Molecular weight determination by gel permeation chromatography (GPC). The molecular weight was determined by GPC on a Hewlett Packard 1100 Liquid Chromatography system with a Viscotech T60 Triple Detector system. Three Waters Ultrahydrogel columns, 1000, 500 and 250 Å, were used for the separation. The mobile phase was 0.1M NaNO₃ and 0.01M K₂HPO₄ salt solution, pH adjusted with phosphoric acid to a pH of 8.0 ± 0.1. The flow rate for the separation was 0.9 mL/min. The column temperature was maintained at 15 °C. The injection volume for 25 the assay was 50 µL. A PEG molecular weight standard of 23,000 Daltons was used to align the detectors. The result for the assay were:

M_n : 341,700 Daltons

M_w : 1,607,000 Daltons

M_w : 2,996,000 Daltons

30 Free poloxamer determination by GPC. The amount of free (unbound)

poloxamer in the polymer matrix was determined using the above GPC method and comparing the poloxamer peaks to that of a standard poloxamer solution. The typical result is approximately 18-22% free poloxamer by weight.

The effect of both the bonded and non-bonded poloxamer on the gelation properties of the responsive polymer network has been determined by extraction of the non-bonded poloxamer from the material. Such extraction studies have established that the graft co-polymer alone exhibits the characteristic reverse thermal gelation of the composition; however, the presence of non-bonded poloxamer component modulates the gelation process. The non-bonded poloxamer component can affect the temperature of transition (from liquid to gel) and the degree of transition and assists in a more controlled and reproducible transition.

Bound poloxamer determination by ethylene oxide (EO) titration. The EO titration was performed as follows. A 5 gm sample of the product polymer was extracted in dichloroethane for three hours at reflux temperatures. The solid is removed and dried under a vacuum for 12 hours at room temperature. The dry material is then analyzed using ASTM method D 2959-95, "Standard Test Method for Ethylene Oxide Content". The amount of EO in the sample is related to the amount of poloxamer bound to the polymer. The typical result is approximately 15 % by weight of EO.

The relative amount of free poloxamer may be varied dependent upon the relative proportions of starting materials and the method of polymerization. Although the residual solids presumably contain only poloxamer which is bonded to the poly(acrylic acid), i.e., a graft co-polymer, the material still shows strong viscosification when it is neutralized and dissolved in water. However, the temperature of viscosification is increased substantially and the degree of viscosification per gram of total solids is increased by removal of free poloxamer. Thus, the free poloxamer plays a role in modifying the extent and temperature of viscosification. The poloxamer undergoes conformational changes and changes to the critical micelle concentration as a function of temperature. The poloxamer will change from an open, non-aggregated form to a micellar, aggregated form with

changes in temperature.

5 Residual acrylic monomer determination by gas chromatography (GC). The residual acrylic acid monomer was determined by GC analysis using a Hewlet Packard GC 5890A, using a HP-FFDAP-TPA 10 m x 0.53 mm x 1 μ m column. The sample was extracted and run in methanol. Using an internal standard ratio, the sample was compared to a one point calibration. The typical results for this assay were below 70 ppm acrylic acid monomer.

10 Residual Norpar solvent by GC. The residual Norpar in the sample was determined by GC using the above method and comparing the Norpar peaks to that of a standard. The typical results were below 1.5 wt%.

15 UV-vis spectrum. Optical clarity data of UV-vis spectrophotometer was obtained. A 1.0% solution in water was prepared and measured at 420 nm. Transmittance (%) was typically greater than 90%.

20 Differential scanning calorimetry (DSC). The DSC was performed by Massachusetts Material Research, Inc., West Boylston, MA using a temperature ramp from 30 to 350 °C at 5 °C/min. The resolution for the system was set to 4 (1.0 °C/min for all slope changes). The assay yielded one endothermic event at 265 °C, typically 270 J/g.

25 Examples 3-9. This example describes the synthesis of a several reversible thermal gelling polymer network prepared using a variety of poloxamers and poly(acrylic acid). The gelation and the physical properties of the resultant polymer network compositions are reported in Table 2.

Table 2.

example	poloxamer	poloxamer composition	polox-amer: PAA	trans. temp.	comments
5	3 Pluronic® F88 Prill polyol	2400 MW PPG; 80 wt% PEG; nominal MW 11,400	1:1	48 °C	viscosity response curve shown in Figure 13
	4 Pluronic® F127 NF polyol	3600 MW PPG; 70 wt% PEG; nominal MW 12,600	1:1	30 °C	pentaerythritol triaryl ether crosslink agent used
	5 Pluronic® P104 polyol	3000 MW PPG; 40 wt% PEG; nominal MW 5,900	1:1	28 °C	viscosity response curve shown in Figure 14
10	6 Pluronic® P123 polyol	3600 MW PPG; 30 wt% PEG; nominal MW 5,750	1:1	25 °C	viscosity response curve shown in Figure 15
	7 Pluronic® F127/Pluronic® F108 polyol blend (1:1)	as above	1:1.7	42 °C	polymer solid formed, dried; resolubilized in neutralizing solution
	8 Pluronic® F88 polyol	as above	1:1.7	80 °C	polymer solid formed, dried; resolubilized in neutralizing solution
	9 Pluronic® F127/Pluronic® F88 polyol blend (1:1)	as above	1:1.7	85 °C	polymer solid formed, dried; resolubilized in neutralizing solution

Example 10. The following example demonstrates the effect of hydrophilic/hydrophobic ratio on the gelling temperature. Polymer network compositions were prepared from the following poloxamers shown in Table 3.

Table 3. Composition of poloxamers investigated.

triblock polyol polymer composition	MW of PPG block	wt% of PEG block
P103 (PEG) ₃₇ (PPG) ₅₆ (PEG) ₃₇	3250	50
P104 (PEG) ₂₅ (PPG) ₅₆ (PEG) ₂₅	3250	40
P105 (PEG) ₁₆ (PPG) ₅₆ (PEG) ₁₆	3250	30

10

Table 3 shows that in this series, the fraction of PEG is reduced when the molecular weight of the PPG block is kept constant. Linse (*Macromol.* **26**:4437-4449 (1993)) report phase diagrams for these copolymers in water were calculated and it was shown that two-phase boundaries corresponding to the beginning of aggregation are almost unaffected by the molecular mass, given a constant PEG/PPG ratio, whereas these boundaries shifted to lower temperature as the PEG content of the polymer is reduced at constant mass. The strong dependence of the PEG/PPG ratio is a consequence of the differing solubilities of PEG and PPG in water at the elevated temperatures. Thus one would suppose that aggregation that causes viscosification in the responsive polymer network composition should shift to lower temperature as PEG fraction decreases.

15
20
25

The poloxamer (3.0 g) was dissolved in 3.0 g acrylic acid. The solution was deaerated by N₂ bubbling for 20 min. and following addition of the 100 :1 of freshly prepared saturated solution of ammonium persulfate in deionized water was kept at 70°C for 16 h resulting in a strong whitish polymer. A sample of the polymer obtained (0.4 g) was suspended in 40 ml deionized water into which NaOH was added. Suspended responsive polymer network particles were allowed to dissolve under constant stirring. The resulting 1 wt% polymer network solutions were subjected to the viscosity measurement at shear rate of 132 or 13.2 sec⁻¹ using a SC4-18 spindle. It can be seen from Figure 16 that, firstly, viscosity of the 1 wt%

responsive polymer network solutions before viscosification (at 20-24°C) decreases in the series (PEG)₃₇(PPG)₅₆(PEG)₃₇(F103) > (PEG)₂₅(PPG)₅₆(PEG)₂₅(F104) > (PEG)₁₆(PPG)₅₆(PEG)₁₆(F105) and, secondly, the temperature at which gelation shifts from about 45°C for (PEG)₃₇(PPG)₅₆(PEG)₃₇ to about 35°C for
5 (PEG)₂₅(PPG)₅₆(PEG)₂₅ and (PEG)₁₆(PPG)₅₆(PEG)₁₆. Both results are in excellent agreement with the theory set forth in Linse.

10 Example 11. The following example is related to release of an active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of the protein hemoglobin from poloxamer:poly(acrylic acid) polymer network is described.

15 Synthesis. Pluronic® F127 (3.0 g) was dissolved in 3.0 g acrylic acid. The solution was deaerated by N₂ bubbling for 0.5 h and following addition of 100 FI of freshly prepared saturated solution of ammonium persulfate (Kodak) in deionized water was kept at 70°C for 16 h resulting in a transparent polymer. The resultant responsive polymer network obtained (5 g) was suspended in 95 ml deionized water
into which NaOH was added. The resulting suspension was allowed to swell for 7 days.

20 Hemoglobin loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 0.25 mg/ml solution of human hemoglobin (Sigma) in deionized water adjusted to pH 8. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (# 2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to
25 either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the hemoglobin-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 0.25 mg/ml hemoglobin solution. After the feed solution had been loaded into the cell, the kinetic time commenced. Samples of the receiver phase were withdrawn from
30 time to time and their absorbance was measured spectrophotometrically at 400 nm.

To calculate hemoglobin concentrations, corresponding calibration curves (absorbance in PBS versus hemoglobin concentration) were generated. The results of the kinetic experiment are presented in Figure 17. It can be seen that the rate of hemoglobin release from the polymer network was substantially lowered at 37°C when compared 5 to that at 25°C, because of viscosity increase in the polymer network at elevated temperatures (see Figure 1). The protein released from the polymer network composition still retained its native structure, as was determined by comparison of uv-vis spectra of release hemoglobin and natural hemoglobin.

Example 12. The following example is related to release of an active agent 10 from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of the protein lysozyme from a polymer network is reported.

Lysozyme loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 1 mg/ml solution of chicken egg-white lysozyme (Sigma) and 1.5 mg/ml sodium dodecyl sulfate (Aldrich) 15 in deionized water adjusted to pH 8.5. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (# 2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the lysozyme-loaded 20 responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 1 mg/ml lysozyme solution. After the feed solution had been loaded into the cell, the kinetic time commenced. Samples were withdrawn and their absorbance measured 25 spectrophotometrically at 280 nm. A calibration curve was prepared for lysozyme concentration ranging from 0 mg/ml to 0.5 mg/ml in phosphate buffered saline. The results of the kinetic experiment are presented in Figure 18. It can be seen that the rate of lysozyme release from the responsive polymer network composition was substantially lowered at 37°C when compared to that at 25°C, because of viscosity 30 increase in responsive polymer network at elevated temperatures (see Figure 1).

In order to demonstrate the retention of the enzymatic activity of lysozyme, the lysozyme released from the responsive polymer network composition was assayed using *Micrococcus lysodeikticus* cells and compared to that of original lysozyme. The enzymatic activity of lysozyme was the same, within the error of the assay (15%), as 5 that of the original lysozyme. Control without lysozyme in presence of sodium dodecyl sulfate did not show any appreciable lysis of the cells.

Example 13. The following example is related to release of an active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of insulin from a responsive polymer network composition is reported.

10 Insulin loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 5 mg/ml solution of bovine Zn²⁺-insulin (Sigma) in deionized water adjusted to pH 7. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of 15 the diffusion cells were separated by mesh screens (# 2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the insulin-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 5 20 mg/ml insulin solution. After the feed solution had been loaded into the cell, the timing commenced. Samples were withdrawn and their absorbance was measured spectrophotometrically at 280 nm. A calibration curve was prepared for insulin concentration ranging from 0 mg/ml to 1.25 mg/ml in phosphate buffered saline. The results of the kinetic experiment are presented in Figure 19. The rate of insulin 25 release from responsive polymer network was substantially lowered at 37°C when compared to that at 25°C, because of viscosity increase in responsive polymer network at elevated temperatures (see Figure 1).

30 Example 14. This example demonstrates the preparation of a sterile reversibly gelling polymer network aqueous composition and the stability of the composition to sterilization. The polymer network is prepared as described in Example 1, except that

the composition is prepared at 2 wt% Pluronic® F127 polyol/poly(acrylic acid). After dissolution of the 2 wt% polymer network in water, the viscosity is measured. The composition then is sterilized by autoclaving at 121°C, 16 psi for 30 minutes.

Viscosity is determined after sterilization. The corresponding curves for viscosity (a) before and (b) after sterilization are shown in Figure 20 and establish that minimal change in the viscosity profile of the material has occurred with sterilization.

Examples 15-30. These examples show additives which may be used to affect the transition temperature overall viscosification of the polymer network composition.

A 1 wt% polymer network was prepared in deionized water at pH 7 in which 10 a variety of additives were included in the composition. The effect of the additive was determined by generation of a Brookfield viscosification curve. Results are reported in Table 4.

Table 4.

Example No.	Additive (wt%)	Effect of additive on:	
		transition temp. (°C)	final viscosity (% change)
15	1,2-methyl pyrrolidone (5)	I (1.8)	N
16	Rhodapex CO-436 (2)	I (1.6)	N
17	Dow Corning 190 (2)	I (5)	I (150)
18	isopropyl alcohol (0.5)	I (3.1)	I (45)
19	Pluronic® L122 (1)	D (4.4)	D (13)
20	Pluronic® F88 (1)	N	I (41)
21	Tween 80 (0.5)	N	I (18)
22	Germaben® II (1)	D (9)	I (100)
23	Iconol NP-6 (1)	D (9)	I (500)
24	Plurafac C-17 (0.5)	I (5.2)	D (36)
25	Dow Corning 193 (0.75)	I (4.1)	D (12)
26	glycerin (5)	D (2)	N
27	UC 50-HB- 170/EO/PO random copolymer (0.5)	N	N
28	PVP K15 (1)	N	N
29	MAPTAC (1)	N	D (8)
30	potassium chloride (0.25)	N	D (34)

20 I = increase; D = decrease; and N = no change

Example 31. Because of the surfactant nature of the polymer network composition coupled with the gelation effect of the polymer network composition, it is possible to prepare formulation which are 100% water-based, but which are lubricous and thick.

5 Formulations including a nonionic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 5.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Emulsifying Wax NF [†]	2.5
Mineral Oil	5.0

15 [†] Polowax available from Croda

Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added, water is added to 100% w/w and allowed to mix to homogeneity. This formulation contains a nonionic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

20 Formulations including a cationic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 6.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Behentrimonium Methosulfate (and) Cetearyl alcohol [†]	2.5
Mineral Oil	5.0

30 [†] Incroquat Behenyl TMS available from Croda

Into a vessel equipped with a high efficiency homogenizer, the formula amount

of all ingredients is added and allowed to mix to homogeneity. This formulation contains a cationic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

5 Formulations including an anionic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 7.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Cetearyl Phosphate (and) Cetearyl alcohol ¹	2.5
Mineral Oil	5.0

15 ¹ Crodafos CES available from Croda

Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added, water is added to 100% w/w and allowed to mix to homogeneity. This formulation contains a anionic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

20 Example 32. Acne Medication: An oil-free, clear, anti-acne treatment is made by combining the following ingredients utilizing conventional mixing techniques:

Table 8.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network prepared as in Example 1	20.0
Glycerin USP	5.0
Salicylic Acid	2.0
DL-Panthenol	0.5
Germaben® II ¹	0.1
Disodium EDTA	0.2
USP Purified Water	72.2

30 ¹ Germaben®II available from Sutton Laboratories

35 To one vessel, equipped with a Lightnin' Mixer with a 3 blade paddle prop,

the full amount of USP Purified Water to 100% w/w is added. While maintaining the temperature, with moderate to vigorous mixing, the formula amount of Disodium EDTA, Citric Acid, DL-Panthenol, Glycerin, Salicylic Acid, and Germaben® II is added. These materials are allowed to dissolve at 50°C. After dissolution, the vessel
5 is then cooled to 20°C. To another vessel, equipped with a high efficiency homogenizer, the formula amount of responsive polymer network is added. The responsive polymer network vessel is then cooled to 4°C. After cooling, while vigorously homogenizing, the contents of the first vessel is added to the second vessel, and allowed to mix to homogeneity.

10 The composition displays a flowable clear jelly appearance with excellent spreadability and absorption characteristics at room temperature, and after heating the formulation to 32°C, the composition thickens to a gel-like consistency.

15 Example 33. (a) Oil-free Moisturizer (formulation I): An oil-free, lubricous moisturizer was made by combining the following ingredients utilizing conventional mixing techniques:

Table 9.

Ingredient	% w/w
10% wt 1:1 responsive polymer network as prepared in Example 1	20.0
Glycerin USP	5.0
PPG-2 Myristyl Ether Propionate	3.0
DL-Panthenol	0.5
Germaben® II ¹	0.1
Disodium EDTA	0.2
Citric Acid	0.01
USP Purified Water	71.19

¹ Germaben® II available from Sutton Laboratories

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The viscosity vs. temperature curve is shown in Figure 21 and demonstrates that addition of adjuvants to the composition significantly enhances the responsive polymer network maximum viscosity (> 900,000 cps). The use of the poloxamer:poly(acrylic acid) polymer network in the formulation also imparts a unique viscosification effect after application to the skin, which is not evident in typical commercial O/W emulsion formulations (See, Figure 21b).

(b) Oil-free Moisturizer (formulation II): An oil-free, lubricious moisturizer was made by combining the following ingredients utilizing conventional mixing techniques:

Table 10.

	Ingredient	% w/w
5	1:1 polymer network as prepared in Example 1	2.0
	Glycerin USP	5.0
	Carbopol 980	1.0
	D-pantenol, propylene glycol	1.0
	Preservative	1.0
10	Hydrolyzed protein (and) hyaluronic acid	0.5
	Sodium hydroxide	0.2
	USP Purified Water	90

The above ingredients were added and processed as described above for the
15 acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to 26°C, the composition thickens to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

20 Example 34. Sunscreen Lotion. An oil-free, lubricious sunscreen lotion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 11.

	Ingredient	% w/w
5	1:1 polymer network as prepared in Example 1	2.0
	Glycerin USP	8.0
	Carbopol 980	1.0
	Parsol MCX	7.0
10	Myristyl Ether Propionate	5.0
	Preservative	1.0
	Cyclomethicone	1.0
	Sodium hydroxide	0.2
	USP Purified Water	74

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C. the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

20 Example 35. Facial mask. A face mask was made by combining the following ingredients utilizing conventional mixing techniques:

Table 12.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	1.0
Polyvinyl alcohol	6.0
Polyvinylpyrrolidone (20%)	5.0
D-panthenol, propylene glycol	1.25
Propylene glycol	1.25
USP Purified Water	85.5

10

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

Example 36. Facial toner. A face mask was made by combining the following ingredients utilizing conventional mixing techniques:

Table 13.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	0.01
Hydroxyethyl cetyltrimonium phosphate	1.00
PEG-40 hydrogenated castor oil	2.00
D-panthenol, propylene glycol	0.50
Glycerin	2.00
Witch hazel extract	5.00
USP Purified Water	88.49

30

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like
5 consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

10 Example 36. Solubilization studies of model hydrophobic agents in the poloxamer: poly(acrylic acid) polymer network: estradiol and progesterone. This example is presented to demonstrate the solubilization of a hydrophobic agent in the polymeric network. Progesterone and estradiol were used as the hydrophobic agents in this model solubilization study.

15 Acrylic acid (99%), fluorescein (98%), β -estradiol (98%), and progesterone (98%) were all obtained from Aldrich and used as received. Pluronic® F127 NF was obtained from BASF. Poly(oxyethylene-b-oxypropylene-b-oxyethylene)-g-poly(acrylic acid) copolymers (responsive polymer network) were synthesized by free-radical polymerization of acrylic acid in the presence of poloxamer as described above. The polymer network copolymers discussed here were composed of about 1:1 ratio of PAA to poloxamer. The rheological properties of polymer network were assessed using LVDV-II + and RVDV-II + Brookfield viscometers. The microscopic light scattering of 21 nm poly(styrene) latex particles in deionized water and 1 w% reversibly gelling polymer network was measured using He-Ne laser as described previously (See, Matsuo, E.S., Orkisz, M., Sun, S.-T., Li, Y., Tanaka, T., Macromolecules, 1994, 27, 6791). The solubility of fluorescein and hormones in aqueous solutions was measured by the equilibration of excess solubilizate with the corresponding solution following removal of undissolved species by centrifugation and filtration. Hydrophobic agents were assayed spectrophotometrically at 240
20 (progesterone) or 280 nm (estradiol), or by using 70/30 w/w H₂SO₄/MeOH (Tsilifonis-Chafetz reagent). In vitro hormone release studies were conducted using thermostatted, vertical Franz cells. Spunbonded polypropylene microfilters (micron retention, 15-20) were used as a membrane separating feed and receiver phases in
25
30

Franz cells. The responsive polymer network, water, ethanol, and 20% PEG in water were observed to wet the membrane. The receiver solutions consisted of 20 w% PEG in water (pH 7) and were stirred by magnetic bars. The feed phases composed of responsive polymer network were loaded with either estradiol or progesterone. Each 5 hormone was dissolved in ethanol and the resulting solution was added into the responsive polymer network.

Equilibrium solubility vs. temperature plots for estradiol and progesterone (partition coefficient octanol/water (P) 7200 and 5888, respectively, in aqueous solutions of Pluronic® F127 polyol and responsive polymer network are presented in 10 Figure 22. It can be seen that increasing temperature and concentration (C) of polymers in the solution raises the amount of the hormone dissolved. In Figure 22a, vertical lines represent critical micellar temperatures (CMT) for corresponding Pluronic F127 polyol solutions. It is interesting to note that the slope of the 15 solubility-temperature plots increased as temperature reached CMT, indicating that solubilization in the Pluronic solutions was predominantly due to the formation of micelles. Similar trend was observed in the responsive polymer network solutions. The S values in 5% aqueous solutions of branched PAA did not exceed 15 and 40 $\mu\text{g/mL}$ at 60 °C for estradiol and progesterone, respectively. The solubility values found for responsive polymer network were the same as S in parent Pluronic solutions 20 of equivalent concentrations. Therefore, it may be suggested that solubilization behaviors of the responsive polymer network are governed by the properties of the poloxamer incorporated into it. Thermodynamic parameters of the solubilization process with responsive polymer network were calculated using the same approximations as in the micellar solubilization with Pluronic polyols. See, Saito, Y., Kondo, Y., Abe, M., Sato, T., Chem. Pharm. Bull., 1994, 42, 1348. Namely, 25 partition coefficient P was estimated from equilibrium solubilities of estradiol in responsive polymer network and water:

$$P = S_{SH}/S_w \quad (13)$$

by extrapolating the solubility plots of the steroid in Figure 22 to 100 % responsive 30 polymer network. Using P values obtained from data in Figure 23, we calculated the

standard free energy change (ΔG), standard enthalpy of solubilization (ΔH), and standard entropy of solubilization (ΔS) using the following expressions:

$$\Delta G = -RT\ln P; \Delta H = -R\Delta\ln P/\Delta(1/T); \Delta S = (\Delta H - \Delta G)/T \quad (14)$$

Thermodynamic parameters obtained along with P values are given in Table 13.

5 Apparent partition coefficients and thermodynamic parameters for solubilization of estradiol by responsive polymer network.

Table 13.

T, K	P=SSH/S	ΔG kJ/mol	ΔH kJ/mol	ΔS J/mol
277	490	-14.3	4.72	68.6
293	520	-15.2		52.0
310	660	-16.7		53.9
323	660	-17.4		54.0
333	660	-18.0		54.0

15

Negative ΔG values indicate spontaneous solubilization at all temperatures, whereas positive ΔH shows that the solubilization was endothermic, similar to the solubilization of estriol, as well as indomethacin, by the poloxamer. Notably, ΔS of solubilization was always positive, suggesting that the more ordered water molecules surrounding hydrophobic estradiol molecules moved to the less ordered bulk phase when the estradiol was transferred to the hydrophobic core of PPG segments in responsive polymer network. The aggregation of the PPG segments at elevated temperatures provides not only temporary cross-linking in the gel, but also a thermodynamically "friendly" environment for the hydrophobic drugs. Indeed, one can express the free energy of formation of the aggregate core-water interface in responsive polymer network as:

$$\Delta G = [\sigma P_w(1-\phi) + \sigma W_D\phi](4\pi R^2/n) \quad (15)$$

where σP_w and σW_D are the interfacial tensions between pure PPO polymer and water and between water and the drug, respectively; ϕ is the volume fraction of the drug within PPO core; R is the effective radius of the core, and n is the aggregation number.

Equation (3) shows that solubilization of a hydrophobic drug of high σ_{WD} should increase the stability of the aggregate. The solubilization process was found to decrease the critical micellization concentration and substantially increase the micellar core radius in Pluronic surfactants (Hurter, P.N. *et al.*, "In Solubilization in Surfactant Aggregates", Christian, S.D., Ed., Marcel Dekker, New York, 1995). A similar trend is indicated by the lowering the onset of gelation of the responsive polymer network upon solubilization of fluorescein (LogP 2.1) (Figure 24). The solubilization of hydrophobic drugs by responsive polymer network, analogous to the micellar solubilization of drugs by poloxamer, suggests that the responsive polymer network can be an effective vehicle in drug delivery.

Our *in vitro* study of hormone release from responsive polymer network shows an increase in the initial transport rate with either decreasing total polymer concentration in the formulation or decreasing temperature (Figure 25). These effects are related to the changes in macroscopic viscosity of the responsive polymer network, which erodes more rapidly from the feed phase through the membrane into the receiver compartment as the viscosity decreases (Figure 26). The degree of the responsive polymer network erosion was measured by weighing hormone-loaded responsive polymer network before and after kinetic experiment.

Figure 27 shows that the relative amount of progesterone penetrating into the receiver phase decreased 4-fold with the increase of total polymer concentration, whereas the total relative amount of progesterone stayed almost constant as total polymer concentration in the responsive polymer network increased. This result shows the existence of two routes of transport of hydrophobic drugs in our model system. Firstly, the drug incorporated into aggregates within the responsive polymer network system can flow through the membrane along with the erosion of the responsive polymer network; secondly, the drug not associated with the responsive polymer network aggregates can diffuse out of the responsive polymer network in the feed phase. The second process should not be related to the viscosity of the responsive polymer network. Indeed, the dynamic light scattering experiment shows no dramatic change of diffusivity of poly(styrene) latex particles in the responsive polymer

network as temperature rises thereby increasing macroscopic viscosity more than 10-fold (Figure 28). This result indicates that the viscosity of the responsive polymer network is essentially unaffected on the microscopic scale.

5 Appendix A attached.

APPENDIX A

Cosmetic Bench Reference

Function Definitions

Abrasive: abrases, smoothes, polishes	Emollient: softens, smoothes skin
Absorbent powder: takes up liquids, sponge-like action	Emulsifier: a surface-active agent (surfactant) that promotes the formation of water-in-oil or oil-in-water emulsions
Absorption base: forms water-in-oil emulsions	Enzymes: complex proteins produced by living cells that catalyze biochemical reactions at body temperature
Acidulent: acidifies, lowers pH, neutralizes alkalis	Fiber: strands of natural or synthetic polymers: for instance, cotton, wool, silk, nylon, polyester
Amphoteric: capable of reacting chemically either as an acid or a base; amphoteric surfactants are compatible with anionic and cationic surfactants	Film former: solution of a polymer that forms films when the solvent evaporates after application to a surface
Analgesic: relieves pain	Fixative: fixes or sets perfumes; retards evaporation; promotes longer lasting aroma
Antacid: neutralizes stomach acidity	Flavor: imparts a characteristic taste (and aroma) to edible foods and drinks; sometimes used in lip products
Antibacterial: destroys/inhibits the growth/reproduction of bacteria	Foam booster: enhances quality and quantity of lather of shampoos
Anti-caking: prevents or retards caking of powders; keeps powders free-flowing	Foamer: a surface-active agent (surfactant) that produces foam: an emulsion of air-in-water
Anti-dandruff: retards or eliminates dandruff	Foam stabilizer: see Foamer
Antifoam: suppresses foam during mixing	Fungicide: inhibits or destroys growth of fungi
Anti-inflammatory: reduces, suppresses, counteracts inflammation	Gellant: a gelling agent: forms gels: includes a wide variety of materials such as polymers, clays and soaps
Anti-irritant: reduces, suppresses or prevents irritation	Glosser: furnishes a surface luster or brightness: usually used in lip or hair products
Antimicrobial: destroys, inhibits or suppresses the growth of microorganisms	Hair colorant: see Colorant
Antioxidant: inhibits oxidation and rancidity	Hair conditioner: see Conditioner
Antiperspirant: reduces or inhibits perspiration	Hair dye: imparts a new permanent or semi-permanent color to hair
Antipruritic: reduces or prevents itching	Hair-set polymer: polymer and/or resins used to maintain desired hair shape
Antiseptic: inhibits the growth of microorganisms on the skin or on living tissue	Hair-set resin: see Hair-set polymer
Antistat: reduces static by neutralizing electrical charge on a surface	Hair waving: see Reducing agent and Neutralizer
Astringent: contracts organic tissue after application	Humectant: absorbs, holds and retains moisture
Binder: promotes cohesion of powders	Hydrotrope: enhances water solubility
Bleaching agent: lightens color, oxidizing agent	Intermediate: basic chemicals which are chemically modified to obtain the desired function
Botanical: natural plant derivative	Lathering agent: a surface active agent (surfactant) that forms a foam or lather on mixing with air in solution; see also Foamer
Buffer: helps maintain original pH (acidity or basicity) of a preparation	Lubricant: reduces friction, smoothes, adds slip
Carrier: a vehicle or base used for a preparation	Moisture barrier: retards passage of moisture or water
Chelate: form a complex with trace-metal impurities, usually calcium or iron	Moisturizer: aids in increasing the moisture content of the skin through humectant or barrier action
Colorant: adds color, may be a soluble dye or an insoluble pigment	Neutralizer: an oxidizing agent used in hair waving that stops the action of the reducing agent and re-establishes the disulfide linkages in hair
Conditioner: improves condition of skin and hair	Oil absorbent: see Absorbent powder
Coupling agent: aids in solubilization or emulsification of incompatible components	Ointment base: an anhydrous mixture of oleaginous components used as a vehicle for medicaments
Decolorant: removes color by adsorption, bleaching or oxidation	Opacifier: opacifies clear liquids or solids
Denaturant: used to denature ethyl alcohol	Oxidant: oxidizing agent neutralizes reducing agents, bleaching agent
Dental powder: powdered dentifrice	Pearlant: imparts a pearly texture and luster
Deodorant: destroys, masks or inhibits formation of unpleasant odors	Perfume solvent: see Solvent and Solubilizer
Depilatory: removes hair chemically	
Detergent: a surface-active agent (surfactant) that cleans by emulsifying oils and suspends particulate soil	
Disinfectant: destroys pathogenic microorganisms	
Dispersant: promotes the formation and stabilization of a dispersion or suspension	
Dye stabilizer: see Stabilizer	

Peroxide stabilizer: see Stabilizer

Pigment: a finely powdered insoluble substance used to impart color, luster or opacity

Plasticizer: plasticizes (makes more flexible) polymeric films or fibers

Polish: smoothes; adds gloss and luster

Polymer: a very high molecular weight compound consisting of repeating structural units

Powder: a solid in the form of fine particles

Preservative: protects products from spoilage by microorganisms

Propellant: pressurized gas in a container used to expel the contents when pressure is released by opening a valve

Protein: naturally occurring complex combinations of amino acids

Reducing agent: reduces a chemical compound usually by donating electrons; neutralizes oxidizing agents

Refatting agent: adds oils materials to the surface of substrates, e.g., skin and hair

Resin: nonvolatile solid or semisolid organic substances obtained from plants as exudates or prepared by polymerization of simple molecules

Sequestrant: forms coordination complexes with multivalent positive ions

Silicone: polymeric organic silicon compounds which are water resistant

Skin protectant: protects skin from environmental

Solubilizer: solubilizes, usually into aqueous vehicles, normally insoluble materials, such as fragrances, flavors, oils, etc.

Solvent: usually liquids capable of dissolving other substances

Stabilizer: added to stabilize emulsions and/or suspensions

Stimulant: produces a temporary increase in the functional activity of an organism or any of its parts

Surfactant (surface-active agent): lowers surface tension between two or more incompatible phases; soaps, detergents, wetting agents, solubilizing agents and emulsifying agents are typical surfactants; surfactants are classified as anionic, cationic, nonionic and amphoteric; anionic surfactants are negatively charged, cationic surfactants have no electrical charge

Suspending agent: keeps finely divided solid particles in suspension

Sweetener: sweetens to provide a more pleasant taste

Tanning accelerator: accelerates the tanning of skin

Thickener: thickens or increases viscosity/consistency

Thixotrope: the property of certain gels and emulsions of becoming more fluid or less viscous when shaken or stirred

UV absorber: used as a sunscreen and to protect preparations from degradation by UV radiation

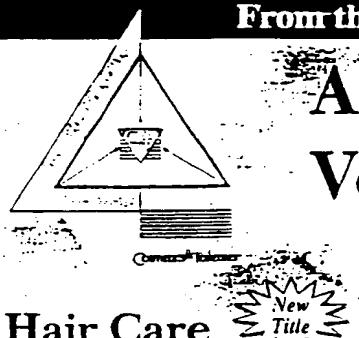
UVA absorber: absorbs in the range 320–400 nanometers (nm)

UVB absorber: absorbs in the range 290–320 nanometers (nm)

Wax: any of numerous substances of plant, animal or synthetic origin that contain principally esters of higher fatty acids and higher fatty alcohols; free fatty alcohols, fatty acids and hydrocarbons may also be present; waxes derived from petroleum products are mainly high-molecular-weight hydrocarbons

Wetting agent: a surface-active agent (surfactant) that lowers the surface and interfacial tension, facilitating the wetting of surfaces

From the Editors of *Cosmetics & Toiletries* magazine



Hair Care

Adsorption of cationic polymers

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Ceramide — D. Braida et al

Melanins — K.C. Brown and C. Prota

Men's hair coloring — S. Casperson

Skin permeation of hair dyes — H. Beck et al

African-American hair — A. Syed et al

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Functions

Abrasive

Adzuki beans
Almond (Prunus amygdalus) meal, shell granules
Aluminum silicate
Apricot (Prunus armeniaca) kernel powder, shells
Hydrated silica
Jojoba (Buxus chinensis) seed powder
Luffa cylindrica
Olive stone granules
Oyster shell powder
Peach (Prunus persica) pit powder
Peach (Prunus persica) stone granules
Polyethylene
Polyethylene HEC granules
Polyethylene oxidized. P. spheres
Polystyrene
Pumice
Rice (Oryza sativa) bran
Silica and S. colloidal
Sodium chloride
Walnut (Juglans regia) shell powder

Absorption base

1,2,6-Hexanetriol
Kaolin
Petrolatum
Rice (Oryza sativa) starch
Soy (Glycine soja) sterol
Zeolite

Absorbent powder

Corn (Zea mays) starch
Maltodextrin
Nylon-12
Oat (Avena sativa) bran, flour, meal
Zeolite

Acidulant

Acetic acid
Citric acid
Fumaric acid
Glutamic acid
Glycolic acid

Hydrochloric acid

Lactic acid
Nitric acid
Phosphoric acid
Sodium bisulfate
Sulfuric acid
Tartaric acid

AHA

Apple (Pyrus malus) extract
Apricot (Prunus armeniaca) kernel powder
Citric acid
Ethyl lactate
Glycolic acid
Lactic acid
Malic acid
Sodium lactate
Tartaric acid

Antiacne

Clays (white, yellow, red, green, pink)
Perfluorodecalin
Salicylic acid
Sulfur

Anti-aging

Basil (Ocimum basilicum) extract
Carrot (Daucus carota) extract
Catalpa kaempferia extract
Ceramide 33 (liquid soy extract)
Crataegus cuneata extract
Eugenia jambolana extract
Fomes fomentarius extract
Fomostopsis pinicola extract
Ganoderma lucidum oil
Ginseng (Panax ginseng) extract
Hyaluronic acid
Hydrolyzed serum protein
Hydrolyzed soy flour
Isachne pulchella extract
Lactoferrin
Lady's Thistle (Silybum marianum) extract
Ligusticum jeholense extract

Marine collagen

Mushroom (Coriolus versicolor) extract
Musk rose (Rosa moschata) oil
Perfluorodecalin
Quaternium-51
Rubus thunbergii extract
Serum protein
Stenocalyx mucilii extract
Tricholoma matsutake extract

Antibacterial

Ammonium iodide
Chlorhexidine
Chlorhexidine diacetate, C. digluconate
Chlordroxidine dihydrochloride
Chlorphenesin
Hexamidine diisethionate
Hexetidine
Iceland moss (Cetraria islandica) extract
Lactoferrin
Lauralkonium bromide, L. chloride
Lauremonium chloride
Laurypyridinium chloride
Mauruelia armata extract
Mushroom (Cordyceps sibirica) extract
Orange blossom extract
Orange (Citrus aurantium dulcis) peel extract
PEG-42 Ebiriko ceramides extract
Peppermint (Mentha piperita) extract
Pholidodendron (Pholidodendron amurense) extract
Pine (Pinus sylvestris) needle extract
Polymethoxy bicyclic oxazolidine
Quaternium 73
Rubus thunbergii extract
Tea tree (Melaleuca alternifolia) oil
Triclocarban
Undecylenic acid

Anticaking

Aluminum starch octenylsuccinate
Calcium stearate
Distarch phosphate
Hydrated silica



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Functions

Kaolin	Mulberry (<i>Morus nigra</i>) extract	Domiphen bromide
Magnesium myristate, M. silicate	Niacinamide ascorbate	Ethyiparaben
Polyethylene, microtized	Orange (<i>Citrus aurantium dulcis</i>) peel extract	Eucalyptus (<i>Eucalyptus globulus</i>) extract
Silica silicate	Orange blossom extract	Fennel (<i>Foeniculum vulgare</i>) extract
Sodium aluminum silicate	Palmetto extract	Garlic (<i>Allium sativum</i>) extract
Zinc stearate	Palmitoyl collagen amino acids	Glyceryl caprylate, G. laurate
Anticaries agent	Passion flower (<i>Passiflora laurifolia</i>) fruit extract	Hexamidine diisethionate
Cetylamine hydrofluoride	Paulownia imperialis extract	Hinokitiol
Olafur	Salicylic acid	Honeysuckle (<i>Lonicera caprifolium</i>) extract
Sodium fluoride	Shea butter (<i>Burrospermum parkii</i>)	Lichen (<i>Usnea barbata</i>) extract
Stearyl trihydroxyethyl propylenediamine dihydrofluoride	Sodium carboxymethyl beta-glucan	Myristalkonium chloride
Anticellulite	Soy (<i>Glycine soja</i>) protein	Penylene glycol
Aminophylline	Stearyl glycyrrhetinate	Phenoxyethyl alcohol
Bladderwrack (<i>Fucus vesiculosus</i>) extract	Stenocaulx micalii extract	Phenol
Butcherbroom (<i>Ruscus aculeatus</i>) extract	Tocopherol acetate, T. nicotinate	Phenoxyethanol
Carcinaria cambogia extract	Trichomonas japonica extract	Phenoxyisopropanol
Fomes fomentarius extract	Willow (<i>Salix alba</i>) extract	Phenyl mercure acetate, P.m. benzoate, P.m. borate
Fomitopsis pinicola extract	Witch hazel (<i>Hornamelis virginiana</i>) extract	o-Phenylphenol
Ivy extract	Withania somnifera extract	Polymethoxy bicyclic oxazolidine
Mushroom (<i>Coriolus versicolor</i>) extract	Yarrow (<i>Achillea millefolium</i>) extract	Potassium sorbate
TEA-hydroiodide	Zinc lactate	Propylparaben
Tricholoma matsutake extract	Anti-irritant	Ricinoleamodopropyltrimonium ethosulfate
Antidandruff	Acetyl monoethanolamine	Sage (<i>Salvia officinalis</i>) extract
Burdock (<i>Arctium lappa</i>) extract	Allantoin	Sodium benzoate, S. pyribione
Chloroxienol	Allantoin acetyl methionine, A. glycyrrhetic acid	Sodium ricinoleate, S. shale oil sulfonate
Corydalis ambigua extract	Azelaamide MEA	Thimerosal
Disodium undecylenamidoMEA-sulfosuccinate	Betaine	Thyme (<i>Thymus vulgaris</i>) extract
Ginger root extract	Calendula officinalis extract	Thymol
Inga edulis extract	Cocamidopropyl betaine	Triclocarban
Mauritiella armata extract	Coceth-7 carboxylic acid	Triclosan
Myristalkonium saccharinate	Cornflower (<i>Centaurea cyanus</i>) extract	Undecylenamido propyltrimonium methosulfate
PEG-6 undecylenate	Diisostearyl dimer dilinoleate	Undecylenic acid
Piroctone olamine	Dipalmitoyl cysteine	Zinc oxide, Z. PCA
Resorcinol	Green tea extract	Zinc pyruhione, Z. undecylenate
Rosemary (<i>Rosmarinus officinalis</i>) extract	Hydrolyzed sweet almond protein	Antioxidant
Sodium shale oil sulfonate	Hydroxypropyltrimonium gelatin	Ascorbic acid
Stenocaulx micalii extract	Lauroyl collagen amino acids	A. polypeptide
Undecylenamide DEA	I-Lysine lauroyl methionine	Ascorbyl oleate, A. palmitate
Willow (<i>Salix alba</i>) bark extract	Mallow extract	Beta-carolene
Zinc pyruhione	Matricaria (<i>Chamomilla recutita</i>) extract	BHA
Antifungal	Palmitoyl hydrolyzed milk protein	BHT
Black walnut (<i>Juglans nigra</i>) extract	Palmitoyl hydrolyzed wheat protein	t-Butyl hydroquinone
Coneflower (<i>Echinacea angustifolia</i>) extract	Palmitoyl keratin amino acids	Dilauryl thiodipropionate
Orange blossom extract	PEG-12 palm kernel glycerides	Dimyristyl thiodipropionate
Pfaffia paniculata extract	PEG-28 glyceryl monocoate	Disodium EDTA
Anti-inflammatory	PEG-60 almond glycerides	Distearyl thiodipropionate
Allantoin polygalacturonic acid	PEG-78 glyceryl cocaoate	Dodecyl gallate
Bisabolol	PEG-82 glyceryl tallowate	EDTA
Black poplar (<i>Populus nigra</i>) extract	PEG-200 glyceryl tallowate	Erythorbic acid
Brassica rapa-depressa extract	Propionyl collagen amino acids	Fenolic acid
Butcherbroom (<i>Ruscus aculeatus</i>) extract	PVP	Grape (<i>Vitis vinifera</i>) seed extract
Calendula officinalis extract	Saccharomyces lysate extract	Green tea extract
Catalpa kaempferi extract	Sodium C12-15 pareth-15 sulfonate	HEDTA
Celastrus paniculata extract	Sodium lauroamphoacetate	Hydroquinone
Ceramide 33 (liquid soy extract)	Soy (<i>Glycine soja</i>) protein	Hydroquinone-beta-D-glucopyranoside
Chaparral (<i>Larrea mexicana</i>) extract	Undecylenovl collagen amino acids	p-Hydroxyvanisoic
Coneflower (<i>Echinacea angustifolia</i>) extract	Valeren (<i>Valeriana officinalis</i>) extract	Lactoferrin
Cornflower (<i>Centaurea cyanus</i>) extract	Antimicrobial	Lysine PCA
Dipotassium glycyrrhizinate	Benzalkonium chloride	Melanin
Euphoratorium fortunei extract	Benzoin acid	Methyl gallate
Euphrasia officinalis extract	Benzyl alcohol	Niacinamide ascorbate
Ficus racemosa extract	Bromochlorophene	Nordihydroguaiaretic acid
Golden seal (<i>Hydrastis canadensis</i>) root extract	2-Bromo-2-nitropropane-1,3-diol	Oat (<i>Avena sativa</i>) extract
Guaiaculene	Butylparaben	Oryzanol
Horse chestnut (<i>Aesculus hippocastanum</i>) extract	Capryloyl collagen amino acids	Pentasodium pentetate
Jujube (<i>Ziziphus jujuba</i>) extract	Capryloyl glycine, C. keratin amino acids	Penteic acid
Laminaria japonica extract	Captan	Propyl gallate
Licorice (<i>Glycyrrhiza glabra</i>) extract	Cetethyltrimonium bromide	Retinyl palmitate polypeptide
Ligustrum jeholense, L. lucidum extract	Cetyl pyridinium chloride	Rosemary (<i>Rosmarinus officinalis</i>) extract
Matricaria (<i>Chamomilla recutita</i>) extract	Chlorothymol	Saccharomyces lysate extract
Melaleuca uncinata extract	Chloroxvinol	Sage (<i>Salvia officinalis</i>) extract
Melia azadirachta extract	Citron oil	Sodium ascorbate, S. erythorbate
	Copper PCA	Sodium metabisulfite
	Dichlorobenzyl alcohol	Sodium selenate, S. sulfite
	Dilauryldimonium chloride	Superoxide dismutase

Functions

Tocopherol acetate. T. linoleate	Lactamidopropyl trimonium chloride	Sambucus nigra oil
Wild marjoram (<i>Origanum vulgare</i>) extract	Lauryldimonium hydroxypropyl hydrolyzed collagen	Sanguisorbae root extract
Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)	Linoleamidopropyl dimethylamine dimer dilinoleate	Selinum spp. extract
Antiperspirant	Olealkonium chloride	Shorea robusta extract
Allantoin-aluminum chloride	PEG-2 cocamine	Tannic acid
Aluminum capryloyl hydrolyzed collagen	PEG-2 cocoronium chloride	Walnut (<i>Juglans regia</i>) leaf extract, oil
Aluminum chlorhydrx-gly. A. chloride	PEG-2 oleammonium chloride	Wheat (<i>Triticum vulgare</i>) protein
Aluminum chlorhydrx, A. chlorhydrx	PEG-8 caprylic/capric glycerides	White nettle (<i>Lamium album</i>) extract
Aluminum PCA. A. sesquichlorhydrxate	PEG-10 cocamide	Witch hazel (<i>Hamamelis virginiana</i>) extract
Aluminum undecylenoyl collagen amino acids	PEG-15 soyamine	Xanthoxyllum bungeanum extract
Aluminum zirconium pentachlorhydrxate	PPG-9 diethylmonium chloride	Zinc lactate
Aluminum zirconium tetrachlorhydrxate	PPG-25 diethylmonium chloride	Ziziphus jujuba extract
Aluminum zirconium tetrachlorhydrx GLY	PPG-40 diethylmonium chloride	Binder
Aluminum zirconium trichlorhydrxate	Propylene glycol stearate	Aluminum starch octenylsuccinate
Aluminum-zirconium-glycine powder	Quaternium-26, -27, -53, -62, -72	Borax nitride
Sage (<i>Salvia officinalis</i>) extract	Rapeseedamidopropyl benzylidimonium chloride	C20-40, C30-50, C40-60 alcohols
Tormentil (<i>Potentilla erecta</i>) extract	Rapeseedamidopropyl epoxypropyl dimonium chloride	Calcium stearate
Zirconium chlorhydrxate	Silica colloidal	Cellulose gum
Antiseptic	Sorbitan caprylate	Dihydroabietyl behenate
Aluminum PCA	N-Soya-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Diisostearyl malate
Azadirachta indica extract	Soyethyl morpholinium ethosulfate	Diocetyl sebacate
2-Bromo-2-nitropropane-1,3-diol	Soyethylidimonium ethosulfate	Distarch phosphate
Calendula amurensis extract	Stearalkonium chloride	Ethylcellulose
p-Chloro-m-cresol	Stearamidopropyl benzyl dimonium chloride	Gellan gum
Clove (<i>Eugenia caryophyllus</i>) oil	Stearamidopropyl ethylidimonium ethosulfate	Hydrogenated jojoba oil
Crataegus cuneata extract	Stearimonium chloride	Isocetyl alcohol, I. palmitate
Dichlorobenzyl alcohol	N-Stearyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Isostearyl isostearate
Entada phaseoloides extract	Wheat germamidopropyl ethylidimonium ethosulfate	Isostearyl neopentanoate
Eucalyptus (<i>Eucalyptus globulus</i>) extract	Astringent	Maltodextrin
Golden seal (<i>Hydrastis canadensis</i>) root extract	Aluminum citrate, A. lactate	Methylcellulose
Hexachlorophene	Astragalus sinicus extract	Microcrystalline cellulose
Melia australasica, M. azadirachta extract	Astrocaryum murumuru, A. tucuma extract	Octyl palmitate
Methyl salicylate	Azadirachta indica extract	Octyldodecyl myristate
Orange (<i>Citrus aurantium dulcis</i>) peel extract	Azelamide MEA	bis-Octyldodecyl stearoyl dimer dilinoleate
Oxyquinoline sulfate	Bearberry (<i>Arctostaphylos uva-ursi</i>) extract	Octyldodecyl stearoyl stearate
Paffia paniculata extract	Birch (<i>Betula alba</i>) leaf extract	Oleyl oleate
Potassium abietoyl hydrolyzed collagen	Catalpa bignonioides extract	PEG-20, -75, -150, -240, -350
PVP-iodine	Celastrus paniculata extract	Polydipentene
Silver nitrate	Coccinea indica extract	Polyethylene: P. micronized
Sodium salicylate	Coffee (<i>Coffea arabica</i>) bean extract	PTFE
Sterculia plataniifolia extract	Euphorbia officinalis extract	PVP
Tea tree (<i>Melaleuca alternifolia</i>) oil	Euterpe precatoria extract	Sorbitol
Tormentil (<i>Potentilla erecta</i>) extract	Evening primrose (<i>Oenothera biennis</i>) extract	Synthetic wax
Xanthoxyllum bungeanum extract	Genianthus (Genianthus lutea) extract	Tapioca dextrin
Antistat	Geranium maculatum extract	Tridecyl behenate, T. neopentanoate
Acetamide MEA	Grape (<i>Vitis vinifera</i>) leaf extract	Tridecyl stearoyl stearate
Acetamidopropyl trimonium chloride	Henna (<i>Lawsonia inermis</i>) extract	Trisodium EDTA
6-(N-Acetyl-L-amino)-4-oxyhexyltrimonium chloride	Hierochloe odorata extract	Biol. polymer
Alkyl dimethyl betaine	Honeysuckle (<i>Lonicera caprifolium</i>) extract	Distarch phosphate
Babassuamidopropalkonium chloride	Hops (<i>Humulus lupulus</i>) extract	Dog rose (<i>Rosa canina</i>) seed extract
Behenamidopropyl ethylidimonium ethosulfate	Horsetail extract	Hydrogen peroxide
Behenamidopropyl hydroxyethyl dimonium chloride	Hypéricum perforatum extract	Kojic acid
Carboxymethyl chitin	Ivy extract	Mulberry (<i>Morus nigra</i>) extract
Cetethyl morpholinium ethosulfate	Juniperus communis extract	Sanguisorbae root extract
Cerimonium chloride	Kadsura heteroclita extract	Botanical
Chitin	Kola (<i>Cola acuminata</i>) extract	Acacia
Chitosan	Lady's mantle (<i>Alchemilla vulgaris</i>) extract	<i>Acacia farnesiana</i> extract
Cocamidopropyl ethylidimonium ethosulfate	Lemon (<i>Citrus medica limonum</i>) extract, peel extract	Agrimony (<i>Agrimonia eupatoria</i>) extract
Cocodimonium hydroxypropyl hydrolyzed rice protein	Lemon bioflavonoids extract	Alder (<i>Alnus firma</i>) extract
Cocodimonium hydroxypropyl hydrolyzed soy protein	Lysimachia foenum-graecum extract	Alfalfa (<i>Medicago sativa</i>) extract
Dimethicone hydroxypropyl trimonium chloride	Magnolia spp. extract	Algae (<i>Ascophyllum nodosum</i>) extract
Dimethyl behenamine, D. cocamine	Mauritia flexosa extract	Algae (<i>Lithothamnion calcareum</i>) extract
Dimethyl palmitamine, D. soyamine	Maximilliana regia extract	Aloe barbadensis, A.b. extract
Dimethyl tallowamine	Melaleuca uncinata, M. wilsonii extract	Aloe capensis extract
Diodeylamidoethyl hydroxyethyltrimonium methosulfate	Melia australasica extract	Alpine Veronica extract
Dipalmitioylethyl hydroxyethyltrimonium methosulfate	Nettle (<i>Urtica dioica</i>) extract	Althea officinalis extract
N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride	Oak (<i>Quercus</i>) bark extract	Angelica archangelica extract
Erucamidopropyl hydroxysultaine	Ocimum basilicum, O. sanctum extract	Anise (<i>Pimpinella anisum</i>) extract
Glyceryl monopyroglutamate	Palmito extract	Apple (<i>Pyrus malus</i>) extract
Hydrogenated tallowamine oxide	Passion flower (<i>Passiflora laurifolia</i>) fruit extract	Apricot (<i>Prunus armeniaca</i>) extract
Isostearamidopropyl dimethylamine	Plantain (<i>Plantago major</i>) extract	Arnica montana extract

Functions

Asparagus officinalis extract	Cucumber (<i>Cucumis sativus</i>) extract
Asragalus sinicus extract	Cypress (<i>Cupressus sempervirens</i>) extract
Avens (<i>Geum rivale</i>) extract	Dandelion (<i>Taraxacum officinale</i>) extract
Avocado (<i>Persea gratissima</i>) extract	Date (<i>Phoenix dactylifera</i>) extract
Balm mint (<i>Melissa officinalis</i>) extract, oil extract	Dead Sea Mud, Salts
Banana (<i>Musa sapientum</i>) extract	Dog rose (<i>Rosa canina</i>) hips extract
Barley (<i>Hordeum vulgare</i>) extract	Dyer's broom extract
Basil (<i>Ocimum basilicum</i>) extract	Eleuthero ginseng (<i>Acanthopanax senticosus</i>) extract
Bearberry (<i>Arctostaphylos uva-ursi</i>) extract	Elm (<i>Ulmus campestris</i>) extract
Bee pollen extract	Eucalyptus (<i>Eucalyptus globulus</i>) extract
Beer (<i>Beta vulgaris</i>) extract	Eucalyptus globulus oil
Betaglucan	Eucommia ulmoides extract
Bilberry (<i>Vaccinium myrtillus</i>) extract	Euphrasia officinalis extract
Biovlonoids	Evening primrose (<i>Oenothera biennis</i>) extract, oil
Birch (<i>Betula alba</i>) bark extract, leaf extract	Everlasting (<i>Helichrysum arenarium</i>) extract
Birch (<i>Betula platyphylla japonica</i>) extract	Fennel (<i>Foeniculum vulgare</i>) extract
Bitter orange (<i>Citrus aurantium amara</i>) extract, flower extract, peel extract	Fenugreek extract
Black cohosh (<i>Cimicifuga racemosa</i>) extract	Fermented rice (<i>Oryza sativa</i>) extract
Black currant (<i>Ribes nigrum</i>) extract	Fern (<i>Dryopteris filix-Mas</i>) extract
Black henna extract	Fig (<i>Ficus carica</i>) extract
Black poplar (<i>Populus nigra</i>) extract	Fir needle extract
Black walnut (<i>Juglans nigra</i>) extract	Furniture (<i>Furnaria officinalis</i>) extract
Bladderwrack (<i>Fucus vesiculosus</i>) extract	Gardenia florida extract
Borage (<i>Borago officinalis</i>) extract	Garlic (<i>Allium sativum</i>) extract
Buckthorn (<i>Frangula alnus</i>) extract	Gelidium cartilagineum
Burdock (<i>Arctium lappa</i>) extract	Gentian (<i>Gentiana lutea</i>) extract
Burdock (<i>Arctium minus</i>) root extract	Geranium maculatum extract
Burnet extract	Ginger root extract
Butcherbroom (<i>Ruscus aculeatus</i>) extract	Ginkgo biloba extract
Cabbage rose (<i>Rosa centifolia</i>) extract	Ginseng (<i>Panax ginseng</i>) extract
Calamus (<i>Acorus calamus</i>) extract	Glycyrrhetic acid
Calendula officinalis extract	Glycyrrhiza acid
Caper (<i>Capparis spinosa</i>) extract	Glycyrrhizin, ammoniated
Capsicum frutescens extract, C.I. oleoresin	Golden seal (<i>Hydrastis canadensis</i>) root extract
Caraway (<i>Carum carvi</i>) extract	Goldthread (<i>Coptis japonica</i>) extract
Carageenan (<i>Chondrus crispus</i>)	Gout kola extract
Carrot (<i>Daucus carota sativa</i>) extract	Grape (<i>Vitis vinifera</i>) distillate, extract
Cassia auriculata extract	Grape (<i>Vitis vinifera</i>) leaf, seed extract
Celandine (<i>Chelidonium majus</i>) extract	Grapefruit (<i>Citrus grandis</i>) peel extract
Chamomile (<i>Anthemis nobilis</i>) extract, oil	Green bean (<i>Phaseolus lunatus</i>) extract
Chaparral (<i>Larrea mexicana</i>) extract	Ground Ivy (<i>Glechoma hederacea</i>) extract
Cherry (<i>Prunus speciosa</i>) leaf extract	Guarana (<i>Paulinia cupana</i>) extract
Cherry bark, C.b. extract	Harpagophytum procumbens extract
Chestnut (<i>Castanea sativa</i>) extract	Hazel (<i>Corylus avellana</i>) nut extract
Chinese hibiscus (<i>Hibiscus rosa-sinensis</i>) extract	Henna (<i>Lawsonia inermis</i>) extract
Chlorella vulgaris extract	Hespéridin, H. methyl chalcone
Cimicifuga foetida rhizome extract	Hibiscus sabdariffa extract
Cinchona succirubra extract	Hibiscus synodus extract
Citroflavonoids, water soluble	High beta-glucan barley flour
Citrus bioflavonoid complex	Honeysuckle (<i>Lonicera caprifolium</i>) extract
Clary extract	Honeysuckle (<i>Lonicera japonica</i>) leaf extract
Clove (<i>Eugenia caryophyllus</i>) extract	Hops (<i>Humulus lupulus</i>) extract
Clover (<i>Trifolium pratense</i>) extract	Horse chestnut (<i>Aesculus hippocastanum</i>) extract
Cnidium officinale rhizome extract, C.o. water	Horseradish (<i>Cochlearia armoracia</i>) extract
Coffee (<i>Coffea arabica</i>) bean extract	Horsetail extract
Colloidal oatmeal	Houttuynia cordata extract
Coltsfoot (<i>Tussilago farfara</i>) leaf extract	Hyacinth (<i>Hyacinthus orientalis</i>) extract
Comfrey (<i>Symphytum officinale</i>) leaf extract	Hydrocotyl (<i>Centella asiatica</i>) extract
Condurango extract	Hydrolyzed oat protein, soy flour
Coneflower (<i>Echinacea angustifolia</i>) extract	Hypericum perforatum extract
Curallina officinalis	Hyssop (<i>Hyssopus officinalis</i>) extract
Corchorus olitorius extract	Indian cress (<i>Tropaeolum majus</i>) extract
Conander (<i>Conandrum sativum</i>) extract	Isodonis Japonicus extract
Com (<i>Zea mays</i>) cob powder, silk extract	Ivy extract
Com poppy (<i>Papaver rhoes</i>) extract	Japanese angelica (<i>Angelica acutiloba</i>) extract, water
Comflower (<i>Centauraea cyanus</i>) extract	Japanese hawthorn (<i>Crataegus cuneata</i>) extract
Couch (<i>Agropyron repens</i>) grass	
Crataegus monogyna extract	
Crithmum maritimum extract	

CAMPO Siddha Herbs Extracts

Jothi-Pul (Glow-grass) Siddha Extract for High content bio-available
 Natural Radium for anti Karposi Sarcoma Skin Treatment.
 Roma-Maram (Hairy Tree) Siddha Extract for ANTI-SENSE DNA
 Topical applications for HIV+ Lymph-nodes
 Siddha Extracts for post-Chemotherapy Skin-Damage Treatment

**CAMPO RESEARCH**

Level 36, Hong Leong Building,
 16 Raffles Quay, Singapore 0104
 Tel: (65) - 7653292 Full Colour Fax: (65) - 7653293
 PC - Video Teleconferencing (65) 7653292 - For Tech. Assistance.

Functions

Praffia paniculata extract	Wheat (<i>Triticum vulgare</i>) extract, protein	Phytic acid
Phellodendron amurense extract	Wheat (<i>Triticum vulgare</i>) germ extract	Potassium aspartate
Phospholipids	Wheat bran lipids	Sodium aspartate
Pimento (<i>Pimenta officinalis</i>) extract	White ginger (<i>Hedychium coronarium</i>) extract	Sodium dihydroxyethylglycinate
Pine (<i>Pinus sylvestris</i>) cone, needle extract	White nettle (<i>Lamium album</i>) extract	Sodium hexametaphosphate
Pineapple (<i>Ananas sativus</i>) extract	Wild agrimony (<i>Potentilla anserina</i>) extract	Tetrahydroxypropyl ethylenediamine
Plantain (<i>Plantago major</i>) extract	Wild cherry (<i>Prunus serotina</i>) bark extract	Tetrasodium EDTA
Pollen extract	Wild indigo (<i>Baptisia tinctoria</i>)	Tripotassium EDTA
Pongamol	Wild marjoram (<i>Origanum vulgare</i>) extract	Trisodium EDTA, HEDTA
Poria Cocos extract	Willow (<i>Salix alba</i>) bark extract, extract	
Pueraria lobata extract	Willow (<i>Salix alba</i>) leaf extract	Cell stimulant
Queen of the meadow extract	Witch hazel (<i>Hamamelis virginiana</i>) extract	<i>Aesculus chinensis</i> extract
Quillaja saponaria extract	Yarrow (<i>Achillea millefolium</i>) extract	<i>Artemisia apiculata</i> extract
Quince (<i>Pyrus cydonia</i>) seed extract	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)	<i>Astrocarpum muru. A. lucuma</i> extract
Quinoa (<i>Chenopodium quinoa</i>) extract	Yucca vera extract	<i>Baccharis gasipaes</i> extract
Raspberry (<i>Rubus</i>) extract	Zanthoxylum pipinum extract	<i>Borago sorbillis</i> extract
Rauwolfia (<i>Serpentina</i>) extract	Zedoary (<i>Curcumza zedoraria</i>) oil	<i>Calendula amurensis</i> extract
Red clover		<i>Chrysanthemum monspeliacum</i> extract
Rehmannia chinensis extract		<i>Coccinea indica</i> extract
Restharrow (<i>Ononis spinosa</i>) extract		<i>Comfrey (Symphytum officinale)</i> leaf extract
Rhododendron chrysanthum extract		<i>Condurango</i> extract
Rhodophycea extract		<i>Dandelion (Taraxacum officinale)</i> extract
Rhubarb (<i>Rheum palmatum</i>) extract		<i>Echites glauca</i> extract
Rice (<i>Oryza sativa</i>) bran extract		<i>Equisetum arvense</i> extract
Rice fatty acid		<i>Eucalyptus (Eucalyptus globulus)</i> extract
Rose (<i>Rosa multiflora</i>) extract		<i>Euphorionum (fortunei)</i> extract
Rosemary (<i>Rosmarinus officinalis</i>) extract		<i>Euterpe precatoria</i> extract
Rubia tinctorum extract		<i>Ficus racemosa</i> extract
Safflower (<i>Carthamus tinctorius</i>) extract		<i>Glycoproteins</i>
Sage (<i>Salvia officinalis</i>) extract, water		<i>Hierochloe odorata</i> extract
Sambucus nigra berry extract, extract		<i>Horse chestnut (Aesculus hippocastanum)</i> extract
Sandalwood (<i>Santalum album</i>) extract		<i>Inga edulis</i> extract
Sanguinaria canadensis extract		<i>Kadsura heterophylla</i> extract
Saponaria officinalis extract		<i>Ligustrum lucidum</i> extract
Sasa veitchii extract		<i>Lysimachia loeuen-graecum</i> extract
Saxifraga sarmentosa extract		<i>Maunilia flexosa</i> extract
Scabiosa arvensis extract		<i>Maximilliana regia</i> extract
Scutellaria baicalensis root extract		<i>Melaleuca bracteata. M. symphyocarp</i> extract
Silk extract		<i>Nelumbium speciosum</i> extract
Silver fir (<i>Abies pectinata</i>) extract		<i>Ocimum basilicum</i> extract, <i>O. sanctum</i> extract
Sisal (<i>Agave rigida</i>) extract		<i>Paulownia imperialis</i> extract
Slippery elm extract		<i>Pfaffia</i> spp. extract
Soapberry (<i>Sapindus mukorossi</i>) extract		<i>Pterocarpus marsupianus</i> extract
Sophora angustifolia extract		<i>Rubus thunbergii</i> extract
Sophora flavescens root extract		<i>Seinum</i> spp. extract
Sophora japonica extract		<i>Shorea robusta</i> extract
Soybean (<i>Glycine soja</i>) extract		<i>Xanthozylum bungeanum</i> extract
Soy (<i>Glycine soja</i>) germ extract, protein, sterol		Cleansing
Spearmunt (<i>Mentha viridis</i>) extract, oil		<i>Birch (Betula alba)</i> leaf extract
Spinach (<i>Spinacia oleracea</i>) extract		<i>Lemongrass (Cymbopogon schoenanthus)</i> extract
Spiraea ulmaria extract		<i>Oat (Avena sativa)</i> bran extract
Sunflower (<i>Helianthus annuus</i>) seed extract		<i>Passion flower (Passiflora laurifolia)</i> fruit extract
Sweet almond (<i>Prunus amygdalus dulcis</i>) extract		<i>Witch hazel (Hamamelis virginiana)</i> extract
Sweet cherry (<i>Prunus avium</i>) extract		<i>Yarrow (Achillea millefolium)</i> extract
Sweet cicely (<i>Anthriscus cerefolium</i>) extract		
Sweet clover (<i>Melilotus officinalis</i>) extract		Conditioner
Sweet violet (<i>Viola odorata</i>) extract		<i>Acetamide MEA</i>
Swertia chirata extract		6-(N-Acetylamino)-L-oxyhexyltrimonium chloride
Tea (<i>Camellia sinensis</i>) extract		Acrylamidopropyltrimonium chloride/acrylamide copolymer
Thistle (<i>Chicory benedictus</i>) extract		Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer
Thyme (<i>Thymus vulgaris</i>) extract		AMP-isostearoyl hydrolyzed wheat protein
Tomato (<i>Solanum lycopersicum</i>) extract		Apricot (<i>Prunus armeniaca</i>) kernel oil
Tormentil (<i>Potentilla erecta</i>) extract		Behenalkonium chloride
Tuberose (<i>Polianthes tuberosa</i>) extract		Behenamidopropyl dihydroxypropyl dimonium chloride
Turmeric (<i>Curcuma longa</i>) extract		Behenamidopropyl ethyldimonium ethosulfate
Valerian (<i>Valeriana officinalis</i>) extract		Behenamidopropyl PG-dimonium chloride
Walnut (<i>Juglans regia</i>) extract, leaf extract		
Water Lily (<i>Nymphaea alba</i>) root extract		
Watercress (<i>Nasturtium officinale</i>) extract		

CAMPO Siddha Herb Extracts
CAMPO Rainforest Herb Extracts & Oils
CAMPO Australasian Herbs & Tea Tree Extracts
CAMPO Chinese & Japanese Herb Extracts

CAMPO RESEARCH
 Level 36, Hong Leong Building,
 16 Raffles Quay, Singapore 0104
 Tel: (65) - 7653292 Full Colour Fax: (65) - 7653293
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Functions

Behenamidopropylmethyldiamine behenate	Hydrolyzed sweet almond protein	Poly(methacrylamido)propyltrimonium chloride
Behenamine oxide	Hydrolyzed wheat protein/PVP copolymer	Polyoxyethylene dihydroxypropyl linoleaminium chloride
Behenovl PG-trimonium chloride	Hydrolyzed wheat protein polysiloxane polymer	Polyquaternium-2, -5, -6, -11, -16
Behenyl betaine	Hydroxycyclol hydroxyethyl dimonium chloride	Polyquaternium-17, -18, -24, -29, -44
Benzyltrimonium hydrolyzed collagen	Hydroxyproline	Potassium dimethicone copolyol panthenyl phosphate
Cocamidopropyl betaine	Hydroxypropyl chitosan	Potassium lauroyl collagen amino acids
Capramide DEA	Hydroxypropyl guar hydroxypropyltrimonium chloride	Potassium lauroyl hydrolyzed soy protein
Caprylic/capric/laurec triglyceride	Hydroxypropyl-bis-isostearylamidopropyltrimonium chloride	Potassium lauroyl wheat amino acids
Caprylyl pyrrolidone	Hydroxypropyl bis-stearyltrimonium chloride	Potassium stearoyl hydrolyzed collagen
Cassia auriculata extract	Hydroxypropyltrimonium gelatin	PPG-5 lanolin alcohol ether
Cetamine oxide	Hydroxypropyltrimonium hydrolyzed keratin	PPG-9 diethylmonium chloride
Cetearylalkonium chloride	H.b. silk	PPG-20 lanolin alcohol ether
Chirosan PCA	Hydroxypropyltrimonium hydrolyzed wheat protein	Proline
Citric acid	Isopropyl hydroxybutyramide dimethicone copolyol	Propylene glycol stearate
Cocamidopropyl dimethylamine, C.d. lactate, C.d. propionate	Isopropyl lanolate	PVP/dimethylaminoethyl methacrylate copolymer
Cocamidopropyl dimethylaminohydroxypropyl hydrolyzed collagen	Isostearamidopropyl betaine, I. dimethylamine	PVP/dimethylaminoethoxyethyl methacrylate/ polycarbamyl/polyglycol ester
Cocamidopropylidimonium hydroxypropylhydrolyzed collagen	Isostearamidopropyl dimethylamine gluconate	PVP/dimethylaminoethoxyethyl methacrylate/ polycarbamyl/polyglycol ester
Cocamidopropyl ethyldimonium ethosulfate	Isostearamidopropyl dimethylamine glycolate	PVP/hydrolyzed wheat protein copolymer
Cocamidopropyl PG-dimonium chloride, C.P.C. phosphate	Isostearamidopropyl dimethylamine lactate	Quaternium-22, -26, -33, -61, -62, -70, -80
Coco-morpholine oxide	Isostearamidopropyl ethyldimonium ethosulfate	Quaternium-76 hydrolyzed collagen
Coco/oicamidopropyl betaine	Isostearamidopropyl laurylacetodimonium chloride	Rapeseedamidopropyl benzylmonium chloride
Cocodimonium hydroxypropyl hydrolyzed hair keratin	Isostearamidopropyl morpholine, I.m. lactate	Rapeseedamidopropyl epoxypropyl dinonium chloride
Cocodimonium hydroxypropyl hydrolyzed rice protein	Isostearamidopropyl PG-dimonium chloride	Rapeseedamidopropyl ethyldimonium ethosulfate
Cocodimonium hydroxypropyl hydrolyzed silk	Isostearaminopropylalkonium chloride	Rice peptide
Cocodimonium hydroxypropyl hydrolyzed soy protein	Isostearyl hydrolyzed animal protein	Ricinoleamidopropyl-dimonium ethosulfate
Coconut alcohol	Isostearylamidopropyl dihydroxypropyl dimonium chloride	Ricinoleamidopropyl betaine
N-Cocovl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Lacioglobulin	Ricinoleamidopropyl dimethylamine lactate
Collagen phthalate	Lauroamidopropyl dimethylamine	Ricinoleamidopropyl ethyldimonium ethosulfate
Dibehenyl/diarachidyl dimonium chloride	Lauramidopropyl PG-dimonium chloride, I.P.C. phosphate	Ricinoleamidopropyltrimonium chloride
Dibehenyldimonium chloride	Laurazine oxide	Ricinoleamidopropyltrimonium ethosulfate
Dicyetylmonium chloride	Lauroampho PG-glycinate phosphate	Silicone quaternium-3, -4
Didecyldimonium chloride	Lauroyl hydrolyzed collagen, L.h. elastin	Silk amino acids
Dihydroxyethyl cocamine oxide	Lauroyl silk amino acids	Sodium/TEA-lauroyl collagen amino acids
Dihydroxyethyl dihydroxypropyl stearamonium chloride	Lauryl methyl gluceth-10 hydroxypropyl-dimonium chloride	Sodium/TEA-lauroyl hydrolyzed keratin
Dihydroxyethyl tallow glycinate	Lauryl phosphate, L. pyrrolidone	Sodium/TEA-lauroyl keratin amino acids
Dihydroxyethyl tallowamine oxide	Lauryldimonium hydroxypropyl hydrolyzed collagen, keratin, soy protein	Sodium citrate
Dilauryl acetyl dimonium chloride	Linoleamidopropylidimethylamine	Sodium cocoyl hydrolyzed soy protein
Dilinoleamidopropylidimethylamine	Milk amino acids	Sodium hydrogenated tallow dimethyl glycinate
Dimethyl hydrogenated tallowamine	Milk protein (Lactis proteinum)	Sodium lauroyl collagen, keratin amino acids
Dimethyl lauramine, D.I. isosteareate	Myristalkonium chloride	Sodium lauroyl wheat amino acids
Dimethyl myristamine, soyamine, stearamine	Myristamidopropyl betaine, M. dimethylamine	Sodium stearoamphoacetate
Dimethylamidopropylamine dimerate	Myrtrimonium bromide	Soluble keratin, wheat protein
Disodium hydrogenated cottonseed glyceride sulfosuccinate	Oat (Avena sativa) protein	Soyamide DEA
Disodium laureth sulfosuccinate	Oleamide	Soyamidopropyl benzylmonium chloride
Disodium lauroamphodiacetate	Oleamidopropyl betaine, O. dimethylamine	Soyamidopropyl betaine, S. dimethylamine
Distearidimonium chloride	Oleamidopropyl dimethylamine hydrolyzed collagen	Soyamidopropyl ethyldimonium ethosulfate
Ethyl ester of hydrolyzed keratin	Oleamidopropylamine oxide	Soyethyl morpholinium ethosulfate
N-Ethylether-bis-1,4-(N-isostearylamidopropyl-N,N-dimethyl ammonium chlo	Oleamine	Stearamide MEA
Glutamic acid	Oleamine oxide	Stearamidooctyl diethylamine, ethanolamine
Glyceryl collagenate	Oleoyl sarcosine	Stearamidopropyl benzyl dimonium chloride
Glycine	Oleyl betaine	Stearamidopropyl cetyltrimonium monium tosylate
Guar hydroxypropyltrimonium chloride	Oleyl dimethylamidopropyl ethonium ethosulfate	Stearamidopropyl dimethylamine stearate
Henna (Lawsonia inermis) extract	Palmitamidopropyl betaine	Stearamidopropyl ethyldimonium ethosulfate
Hydrogenated tallowamine oxide	Palmitamidopropyl dimethylamine	Stearamidopropyl morpholine lactate
Hydrogenated tallowtrimonium chloride	Palmitamine, P. oxide	Stearamidopropyl PG-dimonium chloride
Hydrolyzed conchiorion protein	Panthenyl hydroxypropylsteardimonium chloride	
Hydrolyzed egg protein	PEG-2 milk solids	
Hydrolyzed extensin	PEG-2 oleammonium chloride	
Hydrolyzed fibronectin	PEG-3 lauramine oxide	
Hydrolyzed fish protein	PEG-5 stearyl ammonium lactate	
Hydrolyzed keratin	PEG-15 cocomonium chloride	
Hydrolyzed lacticalbumin	PEG-15 cocopolyamine	
Hydrolyzed milk protein	PEG-15 tallowmonium chloride	
Hydrolyzed oats	PEG-27	
Hydrolyzed reticulin	PEG-40	
Hydrolyzed soy protein	PEG-85 lanolin	
	PEG-7000	
	Polydimethicone copolyol	

Functions

Wheat germamidopropyl ethyldimonium ethosulfate	Disodium lauroamphodiacetate	TEA-PEG-3 cocamide sulfate
Wheat peptide	Disodium lauroamphodipropionate	Undecylenamidopropyl betaine
Yeast powder, deproteinated	Disodium lauryl sulfosuccinate	
Coupling agent	Disodium myristamido MEA-sulfosuccinate	Disinfectant
Acetyl monoethanolamine	Disodium nonoxynol-10 sulfosuccinate	Benzalkonium chloride
Buritiocaoi	Disodium oleamido PEG-2 sulfosuccinate	Chlorophene
Myreth-3	Disodium PEG-4 cocoamido MIPA-sulfosuccinate	Didecyldimmonium chloride
Oleyl alcohol	Disodium ricinoleamido MEA-sulfosuccinate	Myristalkonium saccharinate
PPG-10 butanediol	Disodium tallowiminodipropionate	Shikomai
PPG-10 cetyl ether	Dodecylbenzene sulfonic acid	Sodium capryloamphoacetate
PPG-10 oleyl ether	Dodoxynol-4, -9	Tea tree (<i>Melaleuca alternifolia</i>) oil
PPG-15 stearyl ether	Isopropylamine dodecylbenzenesulfonate	p-Tertiaryphenol
PPG-22 butyl ether	Isostearamidopropyl betaine	
PPG-23 oleyl ether	Isostearate-6 carboxylic acid	Dispersant
PPG-50 oleyl ether	Isostearoamphopropionate	Alkylated polyvinylpyrrolidone
Trideceth-7 carboxylic acid	Isostearyl hydroxyethyl imidazoline	C20-40, C30-50, C40-60 alcohols
Denaturant	Lauramidopropylamine oxide	Castor (<i>Ricinus communis</i>) oil
Brucine sulfate	Laureth-11	Ceteareth-20
Denatonium benzoate, saccharide	Lauroampho PG-glycinate phosphate	Cetyl PPG-2 isodeceth-7 carboxylate
Nicotine sulfate	Lauryl glucoside, L. phosphate	Cholestery/behenyl/octyldodecyl lauroyl glutamate
Sucrose octaacetate	Magnesium laureth sulfate, M. lauryl sulfate	Decaglycerol monodioleate
Thymol	Magnesium PEG-3 cocamide sulfate	Diosoceryl dodecanedioate
Dental powder	MEA-dodecylbenzenesulfonate	Diosostearyl adipate
Dicalcium phosphate	MEA-laureth sulfate	Dimethicone copolyol methyl ether
Silica	MEA-lauryl sulfate	Diocetyldecyl dimer dilinoleate
Sodium monofluorophosphate	Myristamine oxide	Diocetyldecyl dodecanedioate
Stannous fluoride	Myrisuc acid	Ethyl hydroxymethyl oleyl oxazoline
Deodorant	Nonoxynol-10	Glyceryl caprylate, G. caprylate/caprate
Abietic acid	Oleocomphydroxypropylsulfonate	Glyceryl diisostearate
Azadirachta indica extract	Oleth-12, -15	Hydrogenated castor oil, H. lecithin
Chlorophyllin-copper complex	Oleyl betaine	Hydrogenated tallow glycerides
Eugenia jambolana extract	Palmitamidopropyl betaine	Isobutylene/MA copolymer
Farnesol	PEG-10 glyceryl stearate	Isocetyl alcohol
Fermented vegetable	PEG-15 glyceryl stearate	Isopropyl C12-15-pareth-9-carboxylate
Mauritia flexosa extract	PEG-25 glyceryl isostearyl	Isostearyl neopentanoate
Salvia multiorrhiza extract	Potassium cocoyl hydrolyzed collagen	Lanolin acid
Sodium aluminum chlorohydroxy lactate	Sodium caproamphoacetate	Laureth-4, -6, -16
Spondias amara extract	Sodium cocoamphoacetate	Melanin
Triethyl citrate	Sodium cocoamphopropionate	Nonoxynol-2, -18, -20, -30, -40
Zinc phenol sulfonate, Z. ricinoleate	Sodium cocomonoglyceride sulfate	Octoxynol-5, -10
Depilatory	Sodium cocoyl hydrolyzed soy protein	Octoxynol 16, 30, 40, 70
Banum sulfide	Sodium cocoyl isethionate	Ocetyldeceth-5
Beeswax, oxidized	Sodium C12-15 pareth-25 sulfate	Ocetyldecyl/dimethicone copolyol citrate
Calcium thioglycolate	Sodium C14-16 olefin sulfonate	Oleth-40
L-cysteine HCL	Sodium C14-17 alkyl seccusulfonate	Olevi alcohol
Potassium thioglycolate	Sodium decetyl sulfate	PEG-5 castor oil, glyceryl sesquioleate
Sodium thioglycolate	Sodium decyl diphenyl ether sulfonate	PEG-6 beeswax
Thioglycerin	Sodium dodecylbenzenesulfonate	PEG-8/SMDI copolymer
Detergent	Sodium dodecylphenyl ether sulfonate	PEG-9 castor oil, oleate, stearate
Ammonium laureth sulfate	Sodium iodate	PEG-10 dioleate, stearamine
Ammonium lauryl sulfate	Sodium laureth-2 sulfate	PEG-12 beeswax
Capramide DEA	Sodium laureth-3 sulfate	PEG-12 glyceryl dioleate, laurate
Cocamidopropyl dimethylamine lactate	Sodium laureth-7 sulfate	PEG-15 castor oil
Decyl glucoside	Sodium laureth-12 sulfate	PEG-20 almond glycerides
Decyltetradeceth-25	Sodium laureth-13-carboxylate	PEG-20 glyceryl isostearate
DEA lauryl sulfate	Sodium laureth sulfate	PEG-20 sorbitan triisostearate
Diamyl sodium sulfosuccinate	Sodium laurimodipropionate	PEG-25 castor oil
Dicyclohexyl sodium sulfosuccinate	Sodium lauroamphopropionate	PEG-30 dipolyhydroxystearate
Diisobutyl sodium sulfosuccinate	Sodium lauroyl methyl alaninate	PEG-40 hydrogenated castor oil PCA isostearate
Disodium caproamphodiacetate	Sodium lauryl phosphate, S.L sulfate	PEG-60 shea butter glycerides
Disodium caproamphodipropionate	Sodium lauryl sulfocarbate	Poloxyamer 101, 122, 181, 182, 184
Disodium capryloamphodiacetate	Sodium methyl oleoyl taurate	Polyglyceryl-2 sesquistearate
Disodium capryloamphodipropionate	Sodium methyl cocoyl taurate	Polyglyceryl-3 diisostearate, oleate
Disodium capryloyl sulfosuccinate	Sodium methyl lauroyl taurate	Polyglyceryl-5 distearate
Disodium cocamido MEA-sulfosuccinate	Sodium methyl naphthalenesulfonate	Polyglyceryl-6 mixed fatty acids
Disodium cocamido MIPA-sulfosuccinate	Sodium myreth sulfate	Polyglyceryl-10 diisostearate, distearate
Disodium cocamphodipropionate	Sodium myristyl sulfate	Polyglyceryl-10 decaoleate
Disodium deceth-6 sulfosuccinate	Sodium octyl sulfate, oleyl sulfate	Polyhydroxystearic acid
Disodium isodecyl sulfosuccinate	Sodium POE alkyl ether acetate	Polysorbate 40, 80
Disodium lauramido MEA-sulfosuccinate	Sodium trideceth-7 carboxylate	Potassium polyacrylate
Disodium lauramido PEG-2 sulfosuccinate	Sodium trideceth sulfate	PPG-3 PEG-6 oleyl ether
Disodium laureth sulfosuccinate	Sodium tridecyl sulfate	PPG-9 diethylmonium phosphate
	Steareth-11, -30	PPG-12/SMDI Copolymer
	TEA-dodecylbenzenesulfonate	PPG-15 stearyl ether
	TEA-laureth sulfate	PPG-25, PPG-40 diethylmonium chloride
	TEA-lauryl sulfate	PPG-51/SMDI Copolymer
	TEA-palm kernel sarcosinate	PVP/ricinene copolymer
		PVP/hexadecene copolymer

Functions

Rapeseed oil, ethoxylated high erucic acid	Cetyl stearyl octanoate	Dihydroabietyl behenate
Ricinoleyl alcohol	Chia (<i>Salvia hispanica</i>) oil	Dihydroxyethyl tallowamine oleate
Sodium ceteth-13-carboxylate	Cholestene esters	Diisobutyl adipate
Sodium lignosulfonate, S. polymethacrylate	Cholesterol	Diisooctyl adipate, dodecanedioate
Sodium polynaphthalenesulfonate	Cholesteryl/behenyl/octyl/dodecyl lauroyl glutamate	Diisodecyl adipate
Sorbitan oleate	Cholesteryl hydroxystearate	Diisopropyl adipate, dimer dilinoleate
Steareth-10	Cholesteryl stearate	Diisopropyl sebacate
Tricontanyl PVP	Choleith-24	Diisostearyl trimethylolpropone siloxy silicate
Triisostearin PEG-6 esters	C 18-70 Isoparaffin	Diisostearyl adipate
Trioctyldodecyl citrate	C10-18, C12-18 triglycerides	Diisostearyl dimer dilinoleate
Emollient	C12-15 linear alcohols 2-ethylhexanoate	Diisostearyl fumarate, D. malate
Acetylated glycol stearate	Cocamidopropyl PG-dimonium chloride	Dilinoleic acid
Acetylated hydrogenated lanolin	Cocoa (<i>Theobroma cacao</i>) butter	Dimethicone
Acetylated hydrogenated lard glycide	Coco-caprylate/caprate	Dimethicone copolyol
Acetylated hydrogenated vegetable glycide	Coco-rapeseedate	Dimethicone copolyol acetate, D.c. almondate
Acetylated lanolin, A.I. alcohol	Coconut (<i>Cocos nucifera</i>) oil	Dimethicone copolyol isosteareate, D.c. lactate
Acetylated lard glycide	Cocoyl hydrolyzed soy protein	Dimethicone copolyol methyl ether
Acetylated monoglycerides	Collagen phthalate	Dimethicone copolyol phthalate
Acetylated palm kernel glycides	Colloidal oatmeal	Dimethicone propylethlenediamine behenate
Aleurites moluccana ethyl ester	Comfrey (<i>Symphytum officinale</i>) leaf extract	Dimethiconol stearate
Allantoin	Corn (<i>Zea mays</i>) oil	Dimethyl lauramine oleate
Aluminum/magnesium hydroxide stearate	Corn poppy (<i>Papaver rhoeas</i>) extract	Diocetyl adipate
AMP-isostearyl hydrolyzed soy protein	Cottonseed (<i>Gossypium</i>) oil	Diocetyl dimer dilinoleate
Apricot (<i>Prunus armeniaca</i>) kernel oil	Cuttlefish extract	Diocetyl cyclohexane
Arachidyl behenate	Cyclomethicone	Diocylidodecyl dimer dilinoleate
Argania spinosa oil	Deceth-4 phosphate	Diocylidodecyl dodecanedioate
Avocado (<i>Persea gratissima</i>) oil, unsaponifiables	Decyl oleate	Diocyl malate, D. sebacate, succinate
Avocado oil ethyl ester	Decyletetradecanol	Dipentaerythrityl fatty acid ester
Babassu (<i>Orbignya oleifera</i>) oil	Dialkylidimethylpolysiloxane	Dipentaerythrityl hexacaprylate/hexacaprate
Baryl isostearate, B. stearate	Dibutyl sebacate	Dipentaerythrityl hexahydroxystearate/isosteareate
Behenamidopropyl dihydroxypropyl dimonium chloride	Dicapryl adipate	Distearyl dimethylamine dilinoleate
Behenoxy dimethicone	Dicaprlyl ether, D. maleate	Dimidecyl adipate
Behenyl alcohol, B. behenate	Diethylene glycol diisooctanoate	Dog rose (<i>Rosa canina</i>) hips oil
Behenyl erucate, B. isosteareate	Diethylene glycol dioctanoate	Egg (<i>Ovum</i>) yolk extract
Benzyl laurate	bis-Diglyceryl/caprylate/caprate/isosteareate/hydroxystearate/adipate	Emu (<i>Dromiceius</i>) oil
Bladderwrack (<i>Fucus vesiculosus</i>) extract	bis-Diglyceryl/caprylate/caprate/isosteareth-stearate/hydroxystearate/adipate	Erucyl erucate
Borage (<i>Borago officinalis</i>) seed oil	stearate/hydroxystearate/adipate	Ethyl avocadate
Borageamidopropyl phosphatidyl PG-dimonium chloride		Ethylhexyl isopalmitate
Brain extract		
Brazil nut (<i>Bertholletia excelsa</i>) oil		
Butyl myristate, oleate, stearate		
Butyloctanol		
Butyloctyl oleate		
C12-13, C12-16, C14-15 alcohols		
C12-15 alcohols octanoate		
C12-15 alkyl benzoate		
dl-C12-15 alkyl fumarate		
C12-15 alkyl lactate		
Camellia kissi oil		
Tea (<i>Camellia sinensis</i>) oil		
C10-30 cholesterol/lanosterol esters		
Canola oil		
Caprylic/capric triglyceride		
Caprylic/capric triglyceride PEG-4 esters		
Caprylic/capric launc triglyceride		
Caprylic/capric/linoleic triglyceride		
Caprylic/capric/oleic triglycerides		
Caprylic/capric/stearic triglyceride		
Caprylic/capric/succinic triglyceride		
Capsicum frutescens oleoresin		
Carrot (<i>Daucus carota sativa</i>) oil		
Cashew (<i>Anacardium occidentale</i>) nut oil		
Castor (<i>Ricinus communis</i>) oil		
Cetearyl behenate, C. candelillate		
Cetearyl isononanoate, C. octanoate		
Cetearyl palmitate, C. stearate		
Ceteth-10		
Cetostearyl stearate		
Cetyl C12-15 pareth-9 carboxylate		
Cetyl acetate, C. alcohol		
Cetyl esters, C. lactate		
Cetyl myristate, C. octanoate		
Cetyl oleate, C. palmitate		
Cetyl PPG-2 isododeceth-7 carboxylate		
Cetyl nonanoate, C. stearate		

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ROBECO INC.
99 PARK AVENUE • NEW YORK, NY 10016
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OUR 78TH YEAR

Functions

2-Ethylhexyl isostearate	Isononyl isononanoate	Octyldodecanoil
Ethyl linolenate. E. minkate	Isopentylidiole	Octyldodecyl behenate. O. benzoate
Ethyl myristate. E. myristate	Isopropyl avocadate	Octyldodecyl erucate. O. myristate
Ethyl oleate. E. oliveate	Isopropyl C12-15-pareth-9-carboxylate	Octyldodecyl oleate. O. ricinoleate
Evening primrose (<i>Oenothera biennis</i>) extract, oil	Isopropyl isostearate	Octyldodecyl stearate
Glycereth-4,5-lactate	Isopropyl lanolate. I. linoleate	bis-Octyldodecyl stearoyl dimer dilinoleate
Glycereth-5 lactate	Isopropyl myristate. I. palmitate	Octyldodecyl stearoyl stearate
Glycereth-7 benzoate	Isopropyl PPG-2-isodeceth-7 carboxylate	Oleamine oxide
Glycereth-7 diisononanoate	Isopropyl stearate	Oleic/palmitoleic/linoleic glycerides
Glycereth-7 inacetae	Isosorbide laurate	Oleic alcohol
Glycereth-7 inoctanoate	Isostearic acid	Oleostearane
Glycereth-12, -26	Isostearyl alcohol	Oleyl alcohol. O. erucate. O. oleate
Glycerol tricaprylate/caprate	Isostearyl behenate. I. benzoate	Olive (<i>Olea europaea</i>) oil
Glycerol adipate. G. dioleate	Isostearyl diglyceryl succinate	Orange (Citrus aurantium dulcis) peel wax
Glycerol isostearate. G. lanolate	Isostearyl erucate. I. erucyl erucate	Orange roughy (<i>Hoplostethus atlanticus</i>) oil
Glycerol linoleate. G. monopyroglutamate	Isostearyl isostearate. I. lactate	Palm (<i>Elaeis guineensis</i>) oil
Glycerol myristate. G. oleate	Isostearyl malate. I. myristate	Palm kernel glycerides
Glycerol ricinoleate	Isostearyl neopentanoate, palmitate	Palmitic acid
Glycerol inacetyl ricinoleate	Isostearyl stearoyl stearate	Pantthenyl triacetate
Glycosaminoglycans	Isostearylamidopropyl dihydroxypropyl dimonium chloride	Partially hydrogenated canola oil
Glycosphingolipids	Isotridecyl isononanoate	Partially hydrogenated soybean oil
Gold of Pleasure oil	Isotridecyl myristate	Peach (<i>Prunus persica</i>) extract
Grape (<i>Vitis vinifera</i>) seed oil	Jojoba (<i>Buxus chinensis</i>) oil	Peanut (<i>Arachis hypogaea</i>) oil
Hazel (<i>Corylus avellana</i>) nut oil	Jojoba butter. J. esters	Pecan (<i>Carva illinoensis</i>) oil
Helianthus annus ethyl ester	Jojoba oil. synthetic	PEG-2 diisononanoate. P. diocianoate
Hexadecyl isopalmitate	Kukui (<i>Aleurites moluccana</i>) nut oil	PEG-2 milk solids
Hexamethylidisioxane	Lactamide DGA	PEG-4
Hexyl laurate	Laneth-10 acetate	PEG-4 diheptanoate. P. dilaurate
Hexyldecanol	Lanolin. L. acid	PEG-5 C8-12 alcohols citrate
Hexyldecyl stearate	Lanolin alcohol. L. oil	PEG-5 hydrogenated castor oil
Honey extract	Lanolin. ultra abydroous	PEG-5 hydrogenated castor oil triisostearate
Hybrid safflower (<i>Carthamus tinctorius</i>) oil	Lanosterol	PEG-6
Hybrid sunflower (<i>Helianthus annuus</i>) oil	Lard glyceride	PEG-6 capric/caprylic glycerides
Hydrogenated C6-14 olefin polymers	Laureth-2, -3	PEG-7 glyceryl cocoate
Hydrogenated castor oil	Laureth-2 acetate. L. benzoate	PEG-8
Hydrogenated castor oil laurate	Laureth-2-octanoate	PEG-8 dialaureate. P. dioleate
Hydrogenated coconut oil	Lauric/palmitic/oleic triglyceride	PEG-8/SMDI copolymer
Hydrogenated cottonseed oil	Lauryl behenate. L. lactate	PEG-9 stearyl stearate
Hydrogenated C12-18 triglycerides	Lauryl phosphate	PEG-10 stearyl stearate
Hydrogenated lanolin	Lauryldimethylamine isostearate	PEG-12
Hydrogenated lanolin. distilled	Lesquerella fendleri oil	PEG-12 dioleate. P. palm kernel glycerides
Hydrogenated lecithin	Linoleic acid	PEG-15 cocomamine oleate/phosphate
Hydrogenated milk lipids	Macadamia ternifolia nut oil	PEG-18
Hydrogenated minoil	Maledate soybean oil	PEG-20
Hydrogenated palm kernel glycerides	Mango (<i>Magnolia indica</i>) oil. seed oil	PEG-20 hydrogenated castor oil isostearate
Hydrogenated palm oil	Mango kernel oil	PEG-20 hydrogenated castor oil triisostearate
Hydrogenated polyisobutene	Meadowfoam (<i>Limnanthes alba</i>) seed oil	PEG-20 hydrogenated lanolin
Hydrogenated soybean oil	Menhaden (<i>Brevoortia tyrannus</i>) oil	PEG-24 hydrogenated lanolin
Hydrogenated starch hydrolysate	Methyl acetyl ricinoleate	PEG-25 PABA. P. propylene glycol stearate
Hydrogenated tallow glyceride	Methyl gluceth-20	PEG-40 glyceryl laurate
Hydrogenated tallow glyceride lactate	Methyl gluceth-20 benzoate. M. g. distearate	PEG-40 hydrogenated castor oil isostearate
Hydrogenated turtle oil	Methyl hydroxystearate. M. ricinoleate	PEG-40 hydrogenated castor oil laurate
Hydrogenated vegetable glycerides	Microcrystalline wax	PEG-40 hydrogenated castor oil triisostearate
Hydrogenated vegetable oil	Mineral oil (<i>Paraffinum liquidum</i>)	PEG-40 jojoba oil
Hydrolyzed collagen	Mink oil	PEG-50 hydrogenated castor oil laurate
Hydrolyzed conchiorin protein	Musk rose (<i>Rosa moschata</i>) oil	PEG-50 hydrogenated castor oil triisostearate
Hydrolyzed keratin	Myreth-3	PEG-60 shea butter glycerides
Hydrolyzed mushroom (<i>Tricholoma matsutake</i>) extract	Myreth-3 caprate. M. laurate	PEG-70 mango glycerides
Hydrolyzed oat protein	Myreth-3 myristate. M. octanoate	PEG-75
Hydroxylated lanolin	Myristyl alcohol. M. laurate	PEG-75 lanolin. P. shea butter glycerides
Hydroxylated milk glycerides	Myristyl myristate. M. octanoate	PEG-75 shorea butter glycerides
Hydroxystearic acid	Myristyl propionate. M. stearate	PEG-150
Ilipe butter	Neatsfoot oil	PEG/PPG-17/6 copolymer
Isobutyl palmitate. I. stearate	Neem (<i>Melia azadirachta</i>) seed oil	Pentaerythrityl dioleate
Isocetyl behenate. I. octanoate	Neopenyl glycol dicaprate	Pentaerythrityl isostearate/caprate/caprylate/adipate
Isocetyl palmitate. I. salicylate	Neopenyl glycol dicaprate/dicaprlyate	Pentaerythrityl stearate
Isocetyl stearate	Neopenyl glycol diisooctanoate	Pentaerythrityl stearate/caprate/caprylate/adipate
Isodecyl cocaoate	Neopenyl glycol dioctanoate	Pentaerythrityl tetraacrylate/tetracaprate
Isodecyl citrate. I. cocaoate	Oat (<i>Avena sativa</i>) bran extract. extract, flour	Pentaerythrityl tetraisononanoate. P. tetraisostearate
Isodecyl isononanoate. I. laurate	Octacosanyl stearate	Pentaerythrityl tetraaurate. P. tetraoctanoate
Isodecyl neopentanoate	Ocetyl cocaoate	Pentaerythrityl tetraoleate. P. tetrapelargonate
Isodecyl octanoate. I. oleate	Ocetyl hydroxystearate. O. isononanoate	Pentaerythrityl terastearate
Isodecyl stearate	Ocetyl neopentanoate. O. octanoate	Perfluorodecalin
Isododecane	Ocetyl oleate. O. palmitate	Perfluoropoymethylisopropyl ether
Isoeicosane	Ocetyl pelargonate. O. stearate	Petrolatum
Isohexadecane	Ocylidecanol	Pheacetyl dimethicone

Functions

Phytantriol	PPG-8/SMDI copolymer	Propylene glycol myristyl ether acetate
Pistachio (<i>Pistacia vera</i>) nut oil	PPG-9	Propylene glycol stearate, SE
Placental enzymes	PPG-9-buteith-12	Pumpkin (<i>Cucurbita pepo</i>) seed oil
Pollen extract	PPG-9 butyl ether	Quinoa (<i>Chenopodium quinoa</i>) oil
Poloxamer 105 benzoate	PPG-10 butanediol, P. cetyl ether	Rapeseed (<i>Brassica campestris</i>) oil
Poloxamer 182 dibenzoate	PPG-10 methyl glucose ether	Rice (<i>Oryza sativa</i>) bran oil, bran wax
Polybutene	PPG-10 oleyl ether	Rice fatty acid
Polydecene	PPG-11 stearyl ether	Safflower (<i>Carthamus tinctorius</i>) oil
Polydimethicone copolyol	PPG-12-buteith-16	Salmon (<i>Salmo</i>) egg extract
Polyethylene glycol	PPG-12-PEG-50 lanolin	Sesame (<i>Sesamum indicum</i>) oil
Polyglyceryl-2 diisostearate, P. tetraisostearate	PPG-12-PEG-65 lanolin oil	Shark liver oil
Polyglyceryl-3 diisostearate	PPG-12/SMDI Copolymer	Shea butter (<i>Butyrospermum parkii</i>)
Polyglyceryl-3 diisostearate, P. oleate	PPG-14 butyl ether	Shea butter (<i>Butyrospermum parkii</i>) extract
Polyglyceryl-3 stearate	PPG-15 butyl ether, P. stearyl ether	Shea butter, ethoxylated
Polyglyceryl-6 dioleate	PPG-15 stearyl ether benzoate	Shea stenoptera butter
Polyglyceryl-10 decaoleate, P. decastearate	PPG-16 butyl ether	Silybum marianum ethyl ester
Polyglyceryl-10 tetraoleate	PPG-18 butyl ether	Sitostearyl acetate
Polvisobutene	PPG-20	Skin lipids
Polyisobutene:isohexapentaconitatecane	PPG-20-buteith-30	Slippery elm extract
Polyisobutene:isoctadecahexaconane	PPG-20 cetyl ether	Sodium C8-16 isoalkylsuccinyl lactoglobulin sulfonate
Polyisobutene:isopentaconitaocane	PPG-24-glycereth-34	Sodium carboxymethyl beta-glucan
Polvisoprene	PPG-26	Sodium ceteith-13-carboxylate
Polyoxyethylene polyoxypropylene glycol	PPG-27 glyceryl ether	Sodium dimethicone copolyol acetyl methylaurate
Polyquaternium-2	PPG-28-buteith-35	Sodium glyceryl oleate phosphate
Polysiloxane polyalkylene copolymer	PPG-30	Sodium hyaluronate, S. polymethacrylate
Polv Sorbate 40	PPG-30 cetyl ether	Sorbeth-20
Potassium dimethicone copolyol phosphate	PPG-40 butyl ether	Sorbitan isostearate, S. palmitate
PPG-2-buteith-3	PPG-50 cetyl ether, P. oleyl ether	Sorbitan sesquioleate, S. sesquistearate
PPG-2 lanolin alcohol ether	PPG-51/SMDI Copolymer	Sorbitan trioleate
PPG-2 myristyl ether propionate	PPG-53 butyl ether	Soybean (<i>Glycine soja</i>) oil
PPG-3 hydrogenated castor oil	Propylene glycol ceteith-3 acetate	Spermaceti
PPG-3 myrisityl ether	Propylene glycol dicaprylate	Sphingolipids
PPG-5-buteith-7	Propylene glycol dicaprylate/dicaprate	Squalene
PPG-5-laureth-5	Propylene glycol diisostearate, P.g. dioctanoate	Stearamidopropyl cetearyl dimonium tosylate
PPG-5 butyl ether	Propylene glycol dipelargonate	Stearib-4 stearate
PPG-5 lanolin wax	Propylene glycol isoceteth-3 acetate	Steanc acid, S. hydrazide
PPG-5 pentaerythrityl ether	Propylene glycol isostearate, P.g. laurate	Stearoxy dimethicone
PPG-7-buteith-10	Propylene glycol myristate	

ANIMAL OR VEGETABLE?

New V-Series Cerasynt® emulsifiers give you the choice

ISP Van Dyk has added vegetable-based Cerasynt® derivatives to their outstanding emulsifier line. Cerasynt SD-V and IP-V provide the same excellent performance as the original animal-derived products. They are ideal for use as secondary emulsifiers, stabilizers and opacifiers in a wide variety of cosmetic creams and lotions. For information, call **201-450-7724**.



VAN DYK

a subsidiary of International Specialty Products

For samples, call the ISP Sample Center at 1-800-243-6788. To place an order, call ISP Customer & Sales Service at 1-800-622-4423.

Functions

Stearoxydimethicone/dimethicone copolymer	Calcium stearate	N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride
Stearyl behenate, S. benzoate	Calcium stearoyl lactylate	Dodecylophenol-ethylene oxide condensate
Stearyl dimethicone, S. erucate	Capramide DEA	Egg (Ovum) yolk extract
Stearyl heptanoate, S. propionate	Caprylic/capric acid	Emulsifying wax NF
Stearyl stearate	Caprylic/capric glycerides	Ethoxylated fatty alcohol
Stearyl stearoyl stearate	Castor oil, ethoxylated	N-Ethylether-bis-1,4-(N-isostearylaminodopropyl-
Sucrose cocotate	Cetalkonium chloride	N,N-dimethyl ammonium chlo
Sunflower (<i>Helianthus annuus</i>) seed oil	Ceteareth-2 -4 -5 -6	Ethyl hexanediol
Sweet almond (<i>Prunus amygdalus dulcis</i>) oil	Ceteareth-2 phosphate	Euglena gracilis polysaccharide
Sweet cherry (<i>Prunus avium</i>) pit oil	Ceteareth-5 phosphate	Glycereth-26 phosphate
Synthetic jojoba oil	Ceteareth-8 -10 -11 -12	Glyceryl caprylate, G. caprylate/caprate
Synthetic wax	Ceteareth-10 phosphate	Glyceryl citrate/lactate/linoleate/oleate
Tallow	Ceteareth-15 -17 -20 -25	Glyceryl cocoate, G. dilaurate
Tetradecycleicosyl stearate	Ceteareth-27 -29 -30 -34	Glyceryl dilaurate, G. dioleate
Tocopheryl acetate	Cetearyl alcohol	Glyceryl distearate, G. hydroxystearate
Tricapnn	Cetearyl glucoside	Glyceryl isostearate, G. lanolate
Tricaprylin	Ceteth-2 -4 -6 -10 -12 -13	Glyceryl laurate, G. linoleate
Tricaprlyl citrate	Ceteth-16 -20 -25 -30 -33	Glyceryl mono-di-tri-caprylate
Tricholoma matsutake extract	Cetethyldimonium bromide	Glyceryl myristate, G. oleate
Tridecyl behenate, T. cocote	Cetrimonium chloride	Glyceryl palmitate, G. ricinoleate
Tridecyl erucate, T. neopenantanate	Cetyl dimethicone copolyol	Glyceryl ricinoleate SE
Tridecyl octanoate, T. stearate	Cetyl phosphate	Glyceryl stearate, G. stearate citrate
Tridecyl stearoyl stearate	Cholesterol	Glyceryl stearate lactate
Tridecyl trimellitate	Choleith-10 -15 -24	Glyceryl stearate SE
Trihexyldecyl citrate	Cocamide DEA, C. MEA	Glyceryl undecyleneate
Trisocetyl citrate	Cocamidopropyl dimethylamine	Glycol distearate, G. oleate
Trisostearin	Cocamidopropyl PG-dimonium chloride	Glycol palmitate, G. stearate
Trisostearyl citrate	phosphate	Glycol stearate SE
Trisostearyl linoleate	Cocamine	Glycolamide stearate
Trilaunn	Coceth-7 carboxylic acid	Glycosphingolipids
Trilolein	Coconut acid	Hydrogenated coco-glycrides
Trimethylolpropane triacrylate/tricaprate	Copper protein complex	Hydrogenated cottonseed glyceride
Trimethylolpropane triacetate	Cottonseed glyceride	Hydrogenated lanolin
Trimethylolpropane triaurate	C12-13 pareth-3 -4 -9 -23	Hydrogenated lecithin
Trimyrin	C16-18 pareth-3 -5.5 -13 -19	Hydrogenated palm oil
Trioctanoin	Cyclodextrin	Hydrogenated soy glycide
Triocetyldecyl citrate	Decaglycerol monodioleate	Hydrogenated tallow glycides
Triolein	DEA-ceteareth-2-phosphate	Hydrogenated tallow glycides citrate
Tripalmitin	DEA-cetyl phosphate	Hydroxycetyl phosphate
Tripropylene glycol citrate	DEA-cyclocarboxypropylolate	Hydroxylated lanolin
Tristearin	DEA-olet-3 phosphate	Hydroxylated lecithin
Triundecanoin	DEA-olet-3-phosphate	Hydroxyoctacosanyl hydroxystearate
Vegetable oil	DEA olet-10 phosphate	Hydroxypropyl-bis-
Walnut (<i>Juglans regia</i>) oil	DEA-olet-20-phosphate	isostearylaminodopropylmonium chloride
Wheat (<i>Triticum vulgare</i>) germ oil	Diceteareth-10 phosphoric acid	Isosteareth-8 stearate
	Diethanolamine	Isoceteth-10 stearate
	Diethylaminoethyl stearate	Isoceteth-20
	Diglyceryl stearate malate	Isocetyl alcohol
	Dihydrocholeth-15 -20 -30	Isolaureth-6
	Dihydrogenated tallow phthalic acid amide	Isostearamido-propyl dimethylamine gluconate
	Dilauryl acetyl dimonium chloride	Isostearamido-propyl dimethylamine glycolate
	Dilinoleamidopropyl dimethylamine dimethicone	Isostearamido-propyl laurylacetodimonium chloride
	copoloyl phosphate	Isosteareth-2 -3 -10 -12 -20 -22 -50
	Dilinoleic acid	Isosteareth-2-octanoate
	Dimethicone copolyol almondate	Isosteareth-10 stearate
	Dimethicone copolyol isosteareate	Isosteaneic acid
	Dimethicone copolyol laurate	Isostearyl diglyceryl succinate
	Dimethicone copolyol methyl ether	Isostearylamidopropyl dihydroxypropyl dimonium chloride
	Dimethicone copolyol olivate	Karaya (<i>Sterculia urens</i>) gum
	Dimethicone copolyol phthalate	Laneth-5 -10 -15 -16 -20 -40
	Dipalmitoylethyl hydroxyethylmonium methosulfate	Laneth-10 acetate
	Dipropylene glycol	Lanolin
	Disodium hydrogenated cottonseed glycide sulfosuccinate	Lanolin alcohol
	Disodium ricinoleamido MEA-sulfosuccinate	Lanolin, ultra anhydrous
	Disodium stearyl sulfosuccinate	Lanolin wax
	Disodium sulfosuccinamide	Lauramide DEA, L. MEA
	Distearyl phthalic acid amide	

3 BETTER IDEAS.

CARBOPOL
UltrazNew, easiest to
disperse carbomer**CARBOPOL**
HTD 2020For surfactant-based
products**PEMULEN**
POLYMERIC EMULSIFIERSEliminates surfactant-based
emulsifiers

1 BETTER SOURCE.

BFGoodrich

Talk to the global leader.

Functions

Lauramidopropyl dimethylamine	PEG-5 laurate, P. oleamine	PEG-20 lanolin, P. laurate
Lauramidopropyl PG-dimonium chloride	PEG-5 soy sterol, P. soyamine	PEG-20 oleate
Laureth-1 -2 -3 → -5	PEG-5 stearamine, P. stearate	PEG-20 methyl glucose sesquistearate
Laureth-2-octanoate	PEG-5 tallow amine	PEG-20 sorbitan beeswax
Laureth-3 phosphate	PEG-6 capric/caprylic glycerides	PEG-20 sorbitan isostearate
Laureth-4 carboxylic acid	PEG-6 cocamide	PEG-20 sorbitan trioleate
Laureth-5 carboxylic acid	PEG-6 C12-14 ether	PEG-20 stearate, P. tallow amine
Laureth-6 -7 -9 -11 -12	PEG-6 diolaurate, P. dioleate	PEG-22 oleate, P. stearate
Laureth-11 carboxylic acid	PEG-6 distearate, P. isostearate	PEG-24 hydrogenated lanolin
Laureth-16 -20 -23 -25 -30	PEG-6 lauramide, P. laurate	PEG-25 castor oil
Lauryl PCA	PEG-6 oleate, P. palmitate	PEG-25 phytosterol
Laurylmethicone copolyol	PEG-6 sorbitan beeswax	PEG-25 propylene glycol stearate
Lecithin	PEG-6 sorbitan laurate	PEG-25 soy sterol, P. stearate
Linoleamidopropyl PG-dimonium chloride phosphate	PEG-6 sorbitan oleate	PEG-29 castor oil
Lithium stearate	PEG-6 sorbitan stearate	PEG-30 castor oil
Magnesium sulfate hepta-hydrate	PEG-6 stearate	PEG-30 dipolyhydroxystearate
Maleated soybean oil	PEG-6-32	PEG-30 glyceryl cocoate
Methoxy PEG-17/dodecyl glycol copolymer	PEG-6-32 stearate	PEG-30 glyceryl isostearate
Methyl gluceth-20 distearate	PEG-7 glyceryl cocoate	PEG-30 glyceryl laurate
Methyl glucose dioleate, M. g. sesquisostearate	PEG-7 hydrogenated castor oil	PEG-30 glyceryl oleate
Methyl glucose sesquistearate	PEG-7 oleate	PEG-30 glyceryl stearate
MEA-laureth sulfate	PEG-7.5 tallowamine	PEG-30 hydrogenated castor oil
Myreth-3 → -7	PEG-8	PEG-30 lanolin
Myreth-3 myristate	PEG-8 beeswax, P. castor oil	PEG-30 sorbitan tetraoleate
Mystarnamidopropyl dimethylamine	PEG-8 C12-14 ether	PEG-32 diolaurate, P. dioleate
Noxynol-1 -2 -4 -5 -6 -7	PEG-8 distearate	PEG-32 distearate, P. laurate
Noxynol-8 -9 -10 -11 -12 -13	PEG-8 glyceryl laurate	PEG-33 oleate, P. stearate
Noxynol-14 -15 -18 -20 -30 -40 -50	PEG-8 laurate, P. oleate	PEG-33 castor oil
Nonyl nonoxynol-5 -10	PEG-8. P. tallate	PEG-35 castor oil, P. stearate
Oat (Avena sativa) flour	PEG-9 castor oil	PEG-40 castor oil
Octoxynol-1 -3 -5 -8 -10	PEG-9 diisostearate	PEG-40 glyceryl isostearate
Octoxynol 16, 30, 40	PEG-9 dioleate, P. distearate	PEG-40 glyceryl laurate
2-Octyl dodecyl alcohol	PEG-9 laurate, P. oleate	PEG-40 glyceryl triisostearate
Ocryldodecanoil	PEG-9 stearate	PEG-40 hydrogenated castor oil
Ocryldodeceth-20 -25	PEG-10 castor oil, P. cocamine	PEG-40 hydrogenated castor oil PCA isostearate
Oleamide DEA	PEG-10 coconut oil esters	PEG-40 sorbitan diisostearate
Oleamidopropyl dimethylamine	PEG-10 C12-18 alcohols	PEG-40 sorbitan lanolate
Oleamine oxide	PEG-10 dioleate	PEG-40 sorbitan tetraoleate
Oleic acid	PEG-10 glyceryl isostearate	PEG-40 stearate
Oleth-2 -3 → -5 -6 -7 -8 -9	PEG-10 hydrogenated castor oil	PEG-40/dodecyl glycol copolymer
Oleth-10 -12 -15 -20 -23	PEG-10 hydrogenated castor oil trisostearate	PEG-42 babassu glycerides
Oleth-25 -30 -40 -50	PEG-10 lanolate	PEG-44 sorbitan laurate
Oleth 13	PEG-10 polyglyceryl-2 laurate	PEG-45 palm kernel glycerides
Oleth-2 phosphate	PEG-10 sorbitan laurate	PEG-45 safflower glycerides
Oleth-3 phosphate	PEG-10 soy sterol, P. stearamine	PEG-50 lanolin, P. stearamine
Oleth-5 phosphate	PEG-10 stearate	PEG-50 stearate
Oleth-10 phosphate	PEG-11 babassu glycerides	PEG-60 almond glycerides
Oleth-20 phosphate	PEG-11 castor oil	PEG-60 castor oil
Palm acid	PEG-12 dilaurate, P. dioleate	PEG-60 corn glycerides
Palmitamidopropyl dimethylamine	PEG-12 glyceryl dioleate	PEG-60 glyceryl triisostearate
Palmitic acid	PEG-12 laurate, P. oleate	PEG-60 hydrogenated castor oil
PEG-2 cocamine, P. distearate	PEG-12 stearate, P. tallate	PEG-60 hydrogenated castor oil isostearate
PEG-2 hydrogenated tallow amine	PEG-14 avocado glycerides	PEG-60 hydrogenated castor oil triisostearate
PEG-2 laurate, P. laurate SE	PEG-15 castor oil	PEG-60 shea butter glycerides
PEG-2 oleamine, P. oleate	PEG-15 cocamine	PEG-60 sorbitan tetraoleate
PEG-2 soyamine, P. stearamine	PEG-15 glyceryl isostearate	PEG-70 mango glycerides
PEG-2 stearate, P. stearate SE	PEG-15 glyceryl laurate	PEG-75
PEG-3 cocamide	PEG-15 glyceryl ricinoleate	PEG-75 castor oil, P. dilaurate
PEG-3 C12-C18 alcohols	PEG-15 oleamine, P. oleate	PEG-75 dioleate, P. distearate
PEG-3 glyceryl isostearate	PEG-15 stearamine	PEG-75 lanolin, P. laurate
PEG-3 glyceryl triisostearate	PEG-15 tallow amine	PEG-75 oleate
PEG-3 glyceryl tristearate	PEG-15 tallow polyamine	PEG-75 shea butter glycerides
PEG-3 lanolate, P. sorbitan oleate	PEG-16	PEG-75 sborea butter glycerides
PEG-3 stearate	PEG-16 hydrogenated castor oil	PEG-75 stearate
PEG-4 dioleate, P. diisostearate	PEG-16 soy sterol	PEG-80 sorbitan laurate
PEG-4 dilaurate, P. distearate	PEG-18 stearate	PEG-90 stearate
PEG-4 glyceryl distearate	PEG-20 almond glycerides	PEG-100 castor oil
PEG-4 laurate, P. oleate	PEG-20 castor oil, P. dilaurate	PEG-100 hydrogenated castor oil
PEG-4 stearate	PEG-20 dioleate, P. distearate	PEG-100 lanolin, P. stearate
PEG-4 stearyl stearate	PEG-20 glyceryl laurate	PEG-120 distearate
PEG-4 tallowate	PEG-20 glyceryl oleate	PEG-150 dilaurate, P. dioleate
PEG-5 castor oil, P. cocamine	PEG-20 glyceryl stearate	PEG-150 distearate, P. lanolin
PEG-5 C12-C18 alcohols	PEG-20 glyceryl triisostearate	PEG-150 laurate, P. oleate
PEG-5 glyceryl isostearate	PEG-20 glyceryl tristearate	PEG-150 stearate
PEG-5 glyceryl sesquistearate	PEG-20 hydrogenated castor oil	PEG-200 castor oil
PEG-5 glyceryl stearate	PEG-20 hydrogenated lanolin	PEG-200 glyceryl stearate
PEG-5 glyceryl triisostearate		PEG-200 hydrogenated castor oil

Functions

PEG-200 laurate, P. dioleate	Sodium C12-15 pareth-1S sulfonate	Tallowamidopropyl dimethylamine
PEG-400 laurate	Sodium isostearoyl lactylate	Talloweth-6
Phosphate esters	Sodium laureth-17 carboxylate	Tetrasodium dicarboxyethyl stearyl sulfosuccinamide
Phosphated amine oxides	Sodium lauroyl lactylate	TEA-acrylates/acrylonitrile copolymer
Phospholipids	Sodium lauryl sulfate	Tissue extract
Poloxamer 101, 105, 122, 123, 124	Sodium nonoxynol-6 phosphate	Triceteareth-4 phosphate
Poloxamer 181, 182, 184, 185, 235, 237	Sodium octyl sulfate	Trideceth-3, -5, -6, -7, -8
Poloxamer 238, 334, 338, 407	Sodium oleate	Trideceth-9, -10, -12, -15
Polyglyceryl-2 oleate	Sodium oleyl sulfate	Tridecyl ethoxylate
Polyglyceryl-2 polyhydroxystearate	Sodium phosphate	Triethanolamine
Polyglyceryl-2 sebacinostearate	Sodium stearoyl lactylate	Trilaureth-4 phosphate
Polyglyceryl-2 stearate	Sorbeth-20	Triolein
Polyglyceryl-2-PER-4-disteareate	Sorbitan isostearate, S. laurate	Trisodium HEDTA
Polyglyceryl-2-PER-4-stearate	Sorbitan oleate, S. palmitate	Tristearin
Polyglyceryl-3 diisostearate, P. dioleate	Sorbitan sesquioleate, S. sesquisostearate	
Polyglyceryl-3 distearate	Sorbitan stearate, S. tristearate	Enzyme
Polyglyceryl-3 methylglucose distearate	Sorbitan trioleate, S. tristearate	Fermented vegetable
Polyglyceryl-3 oleate, P. polycinoleate	Soyamino	Ganoderma lucidum oil
Polyglyceryl-3 stearate	Stearamide DEA	Lipase
Polyglyceryl-4 oleate, P. stearate	Stearamide DIBA-stearate	Papain
Polyglyceryl-6 dioleate, P. disostearete	Stearamidoethyl diethylamine	Soy (Glycine soja) protein
Polyglyceryl-6 laurate, P. myristate	Stearamidopropyl dimethylamine lactate	Superoxide dismutase
Polyglyceryl-6 oleate, P. polycinoleate	Stearamidopropyl PG-dimonium chloride phosphate	
Polyglyceryl-6 stearate	Stearamine	Essential oil
Polyglyceryl-8 oleate	Stearamine oxide	Aesculus chinensis extract
Polyglyceryl-10 decanoate	Stearath-2, -4, -6, -7, -10, -11, -13	Artemisia apiaica extract
Polyglyceryl-10 diisostearate	Stearath-2 phosphate	Brassica rapa-depressa extract
Polyglyceryl-10 dipalmitate	Stearath-15, -20, -21, -30, -100	Caraway (Carum carvi) oil
Polyglyceryl-10 distearate, P. isostearate	Stearic acid	Cardamon (Elettaria cardamomum) oil
Polyglyceryl-10 laurate, P. linoleate	Sucrose cocoate, S. distearate	Clove (Eugenia carophyllus) oil
Polyglyceryl-10 mixed fatty acids	Sucrose stearate	Eclipta alba extract
Polyglyceryl-10 myristate	Synthetic beeswax	Eucalyptus globulus oil
Polyglyceryl-10 oleate	Tallow glyceride, acetylated hydrogenated	Euphorionum fortunei extract
Polyglyceryl-10 penicillate	Tallowamide DEA	Euterpe precatoria extract
Polyglyceryl-10 stearate		Hierochloe odorata extract
Polyglyceryl-10 tetraoleate		Kadsura heteroclita extract
Polyglyceryl-10 trioleate		
Polyoxyethylene polyoxypropylene glycol		
Polyquaternium-5, -11		
Polysorbate 20, 21, 40, 60, 61		
Polysorbate 65, 80, X1, 85		
Potassium alginate, P. cetyl phosphate		
Potassium laurate, P. myristate		
Potassium tallowate		
PPG-1-PEG-9 lauryl glycol ether		
PPG-2-ceteth-9		
PPG-3 isostearth-9		
PPG-3 PEG-6 oleyl ether		
PPG-5-buteih-7		
PPG-5-ceteth-20		
PPG-5-ceteth-10 phosphate		
PPG-8 oleate		
PPG-10 cetyl ether phosphatate		
PPG-12-PEG-50 laurin		
PPG-15 steryl ether		
PPG-24-buteih-27		
PPG-25 laureth-25		
PPG-26-buteih-26		
PPG-26 oleate		
PPG-36 oleate		
Propylene glycol alginate, P.g. dioleate		
Propylene glycol hydroxystearate		
Propylene glycol laurate, P.g. ricinoleate		
Propylene glycol ricinoleate SE		
Propylene glycol stearate		
Propylene glycol stearate, SE		
Quaternium-33		
Rapeseedamidopropyl ethyldimonium ethosulfate		
Rice (Oryza sativa) bran wax		
Ricinoleamide DEA		
Ricinoleic acid		
Saponins		
Selenium protein complex		
Silicone quaternium-5, -6		
Sodium acrylates/vinyl isodecanoate crosspolymer		
Sodium caproyl laurylate		
Sodium carbonate		
Sodium cetyl sulfate		



Functions

Ligustrum lucidum extract	PVM/MA decadiene crosspolymer	Lauramidopropyl betaine
Lysimachia foenum-graecum extract	PVP/Dimethylacrylate/polycarbamyl/ polyglycol ester	Lauryl betaine
Melaleuca bracteata extract	PVP/dimethylaminooethylmethacrylate copolymer	Myristamidopropyl dimethylamine dimethicone copolyol phosphate
Melaleuca hypericifolia extract	PVP/dimethylaminooethylmethacrylate/ polycarbamyl/polyglycol ester	Myristamine oxide
Melaleuca symphyocarp extract	PVP/epsilonene copolymer	Ocyldodecyl benzoate
Melaleuca uncinata extract	PVP/hexadecene copolymer	Oleamide DEA. O. MIPA
Melaleuca wilsonii extract	PVP/hydrolyzed wheat protein copolymer	Oleyl betaine
Nasturtium sinensis extract	Rice peptide	Palm kernelamide DEA
Nelumbium speciosum extract	Sericin	PEG-3 lauramine oxide
Paulownia impenalis extract	Sheabutter (<i>Butyrospermum parkii</i>)	PEG-15 stearyl ether benzoate
Rosemary (<i>Rosmarinus officinalis</i>) oil	Shellac	PEG-7000
Selinum spp. extract	Sodium C12-15 pareth-7 sulfonate	Sodium cacaoamphoacetate
Trichomonas japonica extract	Sodium hyaluronate	Sodium cocoyl isethionate
Withania somniferum extract	Soluble collagen	Sodium laureth sulfate
Yuzu oil	Soluble keratin	Sodium lauroyl wheat amino acids
Ziziphus jujuba extract	Soluble wheat protein	Sodium octoxynol-2 ethane sulfonate
Exfoliant	TEA-acrylates/acrylonitrogens copolymer	Soyamidopropyl betaine
Apricot (<i>Prunus armeniaca</i>) kernel powder	Tosylamide/epoxy resin	Tallowamide MEA
Glycolic acid	Tricontanyl PVP	Foam stabilizer
Jojoba (<i>Buxus chinensis</i>) seed powder	Triethonium hydrolyzed collagen ethosulfate	Babassuamidopropylamine oxide
Lactic acid	Wheat peptide	Behenamine oxide
Papain	Fixative	Caprylyl pyrrolidone
PEG 11-Avocado Glycerides	Acrylates copolymer	Cetamine oxide
Willow (<i>Salix alba</i>) bark extract	Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer	Cocamide DEA. C. MEA. C. MIPA
Fiber	AMP-acrylates copolymer	Cocamidopropyl betaine
Corn (<i>Zea mays</i>) cob powder	Hydrolyzed zein	Cocamidopropyl hydroxysultaine
Nylon-66	Methacryloyl ethyl betaine/acrylates copolymer	Cocamidopropyl lauryl ether
Oat (<i>Avena sativa</i>) bran, meal	Methyl rosinate	Cocamidopropylamine oxide
Rayon	Polyquaternium-4, -10, -29	Cocamine oxide
Film former	PPG-20 methyl glucose ether	Dihydroxyethyl C12-15 alkoxypropylamine oxide
Acetylated lanolin	Sodium polystyrene sulfonate	Dihydroxyethyl cocamine oxide
Acrylates/hydroxyesters acrylates copolymer	Flavor (aroma)	Dihydroxyethyl tallowamine oxide
Acrylates/octylarylamide copolymer	Benzaldehyde	Erucamidopropyl hydroxysultaine
Acrylates copolymer	Caraway (<i>Carum carvi</i>) oil	Hydroxypropyl methylcellulose
Alkylated polyvinylpyrrolidone	Cardamon (<i>Elettaria cardamomum</i>) oil	Isostearamide DEA
Ammonium acrylates/acrylonitrogens copolymer	Cinnamon (<i>Cinnamomum cassia</i>) oil	Lauramide DEA. L. MEA
Betaglucan	Clove (<i>Eugenia caryophyllus</i>) oil	Lauramidopropylamine oxide
Bladderwrack (<i>Fucus vesiculosus</i>) extract	Ethyl vanillin	Lauramine oxide
Carboxymethylchitosan	Eucalyptus <i>globulus</i> oil	Laureth-10
N,O-Carboxymethylchitosonium	Flavor (aroma)	Lauric-linoleic DEA
Chitosan lactate	Glutamic acid	Lauroyl-linoleoyl diethanolamide
Collagen	Glycyrrheinic acid	Lauroyl-myristoyl diethanolamide
Collagen phthalate	Glycyrrhizin, ammoniated	Lauryl pyrrolidone
Colloidal oatmeal	Methyl salicylate	Linoleamide MEA
Desamido collagen	Orange (<i>Citrus aurantium dulcis</i>) oil	Myristamide DEA. M. MEA
Diisostearoyl trimethylolpropane siloxy silicate	Peppermint (<i>Mentha piperita</i>) oil	Oleamide MEA
DMHF	Rosemary (<i>Rosmarinus officinalis</i>) oil	Palmitamide MEA
Ethyl ester of hydrolyzed silk	Sodium glycyrrhizinate	PEG-3 lauramide
Ethylcellulose	Thymol	PEG-1 oleamide
Geilan gum	Vanillin	Ricinoleamide MEA
Glycerin/diethylene glycol/adipate crosspolymer	Foam booster	Sesameide DEA
High beta-glucan barley flour	Alkyldimethylamine oxide	Wheat germamide DEA
Hydrolyzed collagen	Babassuamidopropyl betaine	Foamer
Hydrolyzed keratin	Babassuamidopropylamine oxide	Ammonium laureth sulfate
Hydrolyzed oat protein	Caprylyl pyrrolidone	Ammonium laureth-5 sulfate
Hydrolyzed pea protein	Carageenan (<i>Chondrus crispus</i>)	Ammonium laureth-12 sulfate
Hydrolyzed reticulin	Cocamide DEA. C. MIPA	Ammonium lauryl sulfate. A. I. sulfosuccinate
Hydrolyzed RNA	Cocamidopropyl betaine	Ammonium myreth sulfate
Hydrolyzed silk	Cocamidopropyl dimethylamine lactate	Ammonium nonoxynol 4 sulfate
Hydrolyzed soy protein	Cocamidopropyl hydroxysultaine	Capryl caprylyl glucoside
Hydrolyzed wheat protein	Coco-betaine	Cetyl betaine
Hydrolyzed wheat protein/dimethicone copolyol	Coco/oleinamidopropyl betaine	Cocamide
 phosphate copolymer	Cocoyl amido hydroxy sulfo betaine	Cocamidopropyl dimethylamine
Hydrolyzed wheat protein/PVP copolymer	Cocoyl monoethanolamide ethoxylate	Cocamidopropyl dimethylamine lactate
Hydroxypropylcellulose	DEA-hydrolyzed lecithin	DEA-laureth sulfate
Hydroxypropyltrimonium gelatin	Dimethyl lauramine	DEA lauryl sulfate
Jojoba (<i>Buxus chinensis</i>) oil	Disodium cocamido MEA-sulfosuccinate	Decyl glucoside
Lactoglobulin	Disodium cocoamphodiacetate	Disodium caproamphodiacetate
Myristoyl hydrolyzed collagen	Disodium lauroamido MEA-sulfosuccinate	Disodium caproamphodipropionate
Nitrocellulose	Disodium laureth sulfosuccinate	Disodium caprylicamphodiacetate
Oat (<i>Avena sativa</i>) extract, protein	Lauramide MIPA	Disodium cocoamphodipropionate
Polyethylene ionomer		Disodium lauroamphodipropionate
Polyquaternium-6, -7, -11, -22, -39		Disodium lauryl sulfosuccinate
Polyvinyl acetate, P. alcohol		Disodium oleamido MEA-sulfosuccinate
Prinellagen		

Functions

Disodium oleamido MIPA-sulfosuccinate	Aluminum distearate, A. tristearate	Cetearyl trimonium methosulfate
Disodium PEG-4 cocoamido MIPA-sulfosuccinate	Ammonium acrylates/acrylonitrogen copolymer	Cetrimonium bromide, C. chloride
Isostearamidopropylamine oxide	Behenic acid	Cetyl pyndinium chloride
Lauryl glucoside	Calcium alginate	Chia (<i>Salvia hispanica</i>) oil
Methyl gluceth-20	Carbomer	Chrysanthemum monilifolium extract
MEA-laureth sulfate	Carboxymethylchitosan	Cinchona succirubra extract
Mixed isopropanolamines myristate	N,O-Carboxymethylchitosonium	Cocamidopropyl dimethylamine propionate
MIPA-lauryl sulfate	Carageenan (<i>Chondrus crispus</i>)	Coccinea indica extract
PEG-80 sorbitan laurate	Ceresin	Cocodimonium hydroxypropyl hydrolyzed collagen
PEG lauryl ether sulfate	Cetearyl candelillate	Cocodimonium hydroxypropyl hydrolyzed keratin
Potassium cocoate, P. lauryl sulfate	Dibenzylidene sorbitol	Cocodimonium hydroxypropyl silk amino acids
Quillaja saponaria extract	Ethylene/acrylic acid copolymer	Cocodimonium hydroxypropyl hydrolyzed wheat protein
Sodium caproamphoacetate	Ethylene/VA copolymer	Cocodimonium hydroxypropyloxyethyl cellulose
Sodium capryloamphoacetate	Gellan gum	Cocodimonium chloride
Sodium capryloamphohydroxypropylsulfonate	Hexanediol behenyl beeswax	Collagen amino acids
Sodium cocoamphoacetate	Hydrogenated jojoba oil	Cyclomethicone
Sodium cocoamphopropionate	Hydrogenated jojoba wax	L-cysteine HCL
Sodium C12-15 pareth-25 sulfate	Hydroxystearic acid	Dibehenylimonium methosulfate
Sodium C12-15 pareth-3 sulfonate	Jojoba wax	Dicytildimonium chloride
Sodium C12-15 pareth-15 sulfonate	Laneth-5, -15	Dicocodimonium chloride
Sodium C14-16 olefin sulfonate	Montmorillonite	Dihydroxyethyl tallowamine oleate
Sodium deceth sulfate	Myreth-3-octanoate	Dimethicone
Sodium laureth-2 sulfate	Octacosanyl stearate	Dimethicone copolyol acetate, D. c. almondate
Sodium laureth-3 sulfate	Oleth-3 phosphate	Dimethicone copolyol amine
Sodium laureth-7 sulfate	Oleth-10 phosphate	Dimethicone copolyol bishydroxyethylamine
Sodium lauriminodipropionate	Poloxamer 105, 123, 124, 185, 235	Dimethicone copolyol isostearate, D. c. laurale
Sodium lauryl ether sulfosuccinate	Poloxamer 237, 238, 338, 407	Dimethicone copolyol olivate
Sodium lauryl sulfate, S. la. sulfoacetate	Polyethylene	Dimethicone hydroxypropyl trimonium chloride
Sodium lauryl sulfosuccinate	Polyethylene, oxidized	Dimethyl lauramine dimer dilinoleate
Sodium magnesium laureth sulfate	Polyquaternium-31	Diolevlamidoethyl hydroxyethylmonium methosulfate
Sodium myreth sulfate, S. myristyl sulfate	Potassium alginate, P. chloride	Dipalmityl ethyl hydroxyethylmonium methosulfate
Sodium trideceth sulfate	Sodium nonoxynol-6 phosphate	Diphenyl dimethicone
Sodium tridecyl sulfate	Sodium tallowate	Dialkylmonium chloride
TEA-dodecylbenzenesulfonate	Synthetic beeswax	N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride
TEA-laureth sulfate	TEA-acrylates/acrylonitrogen copolymer	Entada phaseoloides extract
TEA-lauroyl collagen amino acids	Tribehenin	Ethyl ester of hydrolyzed animal protein
TEA-lauroyl keratin amino acids	Glosser	Gelatin
TEA-lauryl sulfate	C18-36 acid glycol ester	Ginseng hydroxypropyltrimonium chloride butylene glycol
TEA-palm kernel sarcosinate	Diphenyl dimethicone	Hematin
Wheat germamidopropyl betaine	Methyl gluceth-10	Honey (Miel)
Yucca vera extract	Octyldodecyl lactate	Hydrolyzed collagen
Fragrance	Phenyl methicone, P. trimethicone	Hydrolyzed hair keratin
Chamaccyparis obtusa oil	Polyglyceryl-2 dioleate	Hydrolyzed vegetable protein
Orange (<i>Citrus aurantium dulcis</i>) oil	Polvisobutene	Hydrolyzed wheat protein/dimethicone copolyol acetyl copolymer
Peppermint (<i>Mentha piperita</i>) oil	Polyisobutene/isoheptapentacontane	Hydrolyzed wheat protein hydroxypropyl polysiloxane
Phenethyl alcohol	Polymethacrylamidopropyltrimonium chloride	Hydroxyethyl cetyltrimonium phosphate
Fragrance solvent	PPG-10 methyl glucose ether	Hydroxypropyltrimonium hydrolyzed collagen
Benzyl benzoate	PPG-36 oleate	Hydroxypropyl trimonium hydrolyzed wheat protein polysiloxane copolymer
Diethyl phthalate	Tea (<i>Camellia sinensis</i>) oil	Hyssop (<i>Hyssopus officinalis</i>) extract
Triacetin	Tribehenin	Inga edulis extract
Triethyl citrate	Hair care	Isostearamidopropylamine oxide
Fungicide	Gentiana scabra extract	Isostearoyl hydrolyzed collagen
Astrocaryum murumuru extract	Maidenhair fern extract	Keratin amino acids
Azadirachta indica extract	Nicotinamide	Kiwi (<i>Actinidia chinensis</i>) fruit extract
Capitan	Nicotinic acid	Kola (<i>Cola acuminata</i>) extract
Diiodomethyltolylsulfone	Paeonia lactiflora extract	Laminaria japonica extract
Ficus racemosa extract	Watercress (<i>Nasturtium officinale</i>) extract	Laurotrimonium chloride
Hexetidine	Hair conditioner	Lauryl hydroxypropyl trimonium polysiloxane copolymer
Ligusticum jeholense extract	Amino bispropyl dimethicone	Lauryldimethylamine isostearate
Mauritia flexosa extract	Amidomethicone	Lauryldimonium hydroxypropyl hydrolyzed collagen
Melaleuca symphyocarp extract	AMPD-isostearoyl hydrolyzed collagen	Lauryldimonium hydroxypropyl hydrolyzed wheat protein
Melia australasica extract	Aqua Ichthammol	Linoleamidopropyl dimethylamine dimer dilinoleate
Melia azadirachta extract	Babassu (<i>Orbignya oleifera</i>) oil	Linoleamidopropyl dimethylamine
Mushroom (<i>Cordyceps sabolifera</i>) extract	Babassuamidopropalkonium chloride	Lysimachia foenum-graecum extract
Mushroom (<i>Coriolus versicolor</i>) extract	Behenamidopropyl dimethylamine	Melaleuca hypericifolia extract
Sodium undecylenate	Behenamidopropyl hydroxyethyl trimonium chloride	Ocimum sanctum extract
Tea tree (<i>Melaleuca alternifolia</i>) oil	Behentrimonium chloride	Olealkonium chloride
Thiabendazole	Biotin	
Undecylenamide MEA	Bis(bis(2-hydroxyethyl) bis(2-hydroxyethyl) malonamide)	
Zinc undecylenate	Borageamidopropyl phosphatidyl PG-dimonium chloride	
Ziziphus jujuba extract	Brazil nut (<i>Bertholletia excelsa</i>) oil	
Gellant		
Acrylic acid/acrylonitrogen copolymer		
Agar		
Alginate		

Functions

Oleyl dimethylamidopropyl ethonium ethosulfate	V/A/butyl maleate/isobornyl acrylate copolymer	Panthenyl ethyl ether
Palmitamido-decanediol	V/A/crotonates/vinyl neodecanoate copolymer	
Panthenyl ethyl ether	V/A/crotonates/vinyl propionate copolymer	
Paulownia impensis extract	V/A/crotonates copolymer	
Peach (Prunus persica) leaf extract	Vinyl caprolactam/PVP/dimethylaminoethylmethacrylate copolymer	
PEG-2 cocomonium chloride		
PEG-120 jojoba acid/alcohol		
PG-hydroxycellulose lauryldimonium chloride		
PG-hydroxyethylcellulose cocodimonium chloride		
PG-hydroxyethylcellulose lauryldimonium chloride		
PG-hydroxyethylcellulose stearyldimonium chloride		
Phenyl trimethicone		
Phospholipids		
Phytantriol		
Polyoxyethylene polyoxypropylene glycol		
Polypropylene glycol		
Polyquaternium-4. -6. -7. -10		
Polyquaternium-22. -28. -39		
PPG-5-ceteth-10 phosphate		
Propyltrimonium hydrolyzed collagen		
Propyltrimonium hydrolyzed soy protein		
Propyltrimonium hydrolyzed wheat protein		
Quaternium-18. -75. -81. -82		
Quaternium-79 hydrolyzed keratin		
Quaternium-79 hydrolyzed silk		
Sambucus nigra extract, oil		
Sesamidopropalkonium chloride		
Silicone quaternium-1. -8		
Sodium cocoamphoacetate		
Sodium cocoyl hydrolyzed collagen		
Sodium polystyrene sulfonate		
N-Soya-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate		
Stearyltrimonium chloride		
Stearalkonium chloride		
Stearamidopropyl dimethylamine		
Stearidomonium hydroxypropyl hydrolyzed wheat protein		
Steartrimonium chloride		
Steatrimonium hydroxypethyl hydrolyzed collagen		
N-Stearyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate		
Stenocalyx micellii extract		
Sulfur		
Tallowbenzylidemethylammonium chloride, hydrogenated		
Tallowtrimonium chloride		
Tea (Camellia sinensis) oil		
TEA-cocooyl hydrolyzed soy protein		
Thenoxy methionate		
Trimethylsilylamodimethicone		
Wheat amino acids		
 Hair set resin polymer		
Acrylates/acrylamide copolymer		
Acrylates/PVP copolymer		
Acrylates/hydroxyesters acrylates copolymer		
Acrylates/octylarylamide copolymer		
AMP-acrylates copolymer		
Butylester of PVM-MA copolymer		
Carboxylated vinylacetate terpolymer		
Diglycol/CHDM/isophthalates/SIP copolymer		
Eclipta alba extract		
Ethyl ester of PVM/MA copolymer		
Hydroxypropyl chitosan		
Isopropyl ester of PVM/MA copolymer		
Octylacrylamide/acrylates/butylaminoethyl methacrylate copolymer		
Polymethacrylamidopropyltrimonium chloride		
Polypropylene glycol oligosuccinate		
PVP		
PVP/dimethylaminoethylmethacrylate copolymer		
PVP/Poly carbamyl polyglycol ester		
PVP/V.A copolymer		
PVP/V.A-vinyl propionate copolymer		
Sodium polyacrylate		
 Hair sheer		
Maidenhair fern extract		
Tetrabutoxypropyl methicone		
 Hair waving		
Ammonium thioglycolate, A. ibiolactate		
Argania spinosa oil		
L-cysteine HCL		
Cystine		
Diammonium dithiodiglycolate		
Dilauryl thiudipropionate		
Ethanolamine sulfite, E. thioglycolate		
Ethanolamine thiolactate		
Glyceryl thioglycolate		
Hydroxymethyl dioxaazabicyclooctane		
Jojoba esters		
Monoethanolamine thiolactate		
Shea butter, ethoxylated		
Sodium thioglycolate		
Thioglycerin		
Thioglycolic acid		
Thiolactic acid		
 Humectant		
Acetamide MEA		
Acetyl monoethanolamine		
6-(N-Acetylamo)-1-oxyhexyltrimonium chloride		
Adenosine phosphate		
Ammonium lactate		
Atelocollagen		
Calcium pantothenate		
Calcium stearoyl lactylate		
Carboxymethyl chitin		
Carboxymethyl chitosan succinamide		
Chitosan PCA		
Cholesieryl hydroxystearate		
Collagen amino-polysiloxane hydrolyzate		
Colloidal oatmeal		
Copper PCA methylsilanol		
Dimethicone copolyol laurate		
Dipotassium glycyrrhizinate		
Ethyl ester of hydrolyzed silk		
Fatty quaternary amine chloride complex		
Glucose glutamate		
Glycereth-4-S-lactate		
Glycereth-7. -12. -26		
Glycerin		
Honey extract		
Hydrogenated passion fruit oil		
Hydrolyzed casein		
Hydrolyzed fibronectin		
Hydrolyzed glycosaminoglycans		
Hydrolyzed oat protein		
Hydrolyzed silk		
Hydrolyzed soy protein		
Hydroxypropyl chitosan		
Hydroxypropyltrimonium hydrolyzed casein		
Hydroxypropyltrimonium hydrolyzed silk		
Hydroxypropyltrimonium hydrolyzed soy protein		
Hydroxypropyltrimonium hydrolyzed wheat protein		
Keratin amino acids		
Lactamide DGA, MEA		
Lactamidopropyl trimonium chloride		
Lactic acid		
Lactose		
Lauroyl lysine		
Malitol		
Mannitol		
Methyl gluceth-10. -20		
Natto gum		
Oat (Avena sativa) extract, protein		
Panthenol		
 Panthenyl ethyl ether		
PCA		
PEG-4		
Polyamino sugar condensate		
Potassium lactate		
Propylene glycol		
Propyltrimonium hydrolyzed collagen		
Propyltrimonium hydrolyzed soy protein		
Propyltrimonium hydrolyzed wheat protein		
Quaternium-22		
Rice (Oryza sativa) germ oil		
Sea Salts (Maris sal)		
Shea butter (Butyrospermum parkii)		
Silk powder		
Sodium behenoyl lactylate		
Sodium caproyl lactylate		
Sodium cocoyl lactylate		
Sodium hyaluronate		
Sodium isostearyl lactylate		
Sodium laurate, S. lauroyl lactylate, S. PCA		
Sodium polyglutamate		
Sodium stearoyl lactylate		
Sorbitan laurate		
Sorbitan sesquistearate		
Sorbitol		
Sphingolipids		
TEA-PCA		
Urea		
 Hydrotrope		
Ammonium cumenesulfonate		
Ammonium xylenesulfonate		
Cetamine oxide		
Cocamidopropylamine oxide		
Lauramine oxide		
Potassium toluenesulfonate		
PPG-2-isodeceth-4. -6. -9. -12		
Sodium cumene sulfonate		
Sodium laureth-13-carboxylate		
Sodium toluene sulfonate		
Sodium xylene sulfonate		
Trideceth-19-carboxylic acid		
 Intermediate		
Caprylic acid		
Deceth-3		
Diethyl succinate		
Dimethylaminopropylamine		
DM hydantoin		
Dodecylbenzene sulfonic acid		
Ethylene dichloride		
4-Fluoro 3-nitro aniline		
Lauramine		
Methyl benzoate, M. cocoate		
Methyl isosteareate, M. laurate		
Methyl myristate, M. palmitate		
Oleic acid		
Ricinoleic acid		
Tall oil acid		
Tallow acid		
 Lathering agent		
Ammonium cocoyl sarcosinate		
Ammonium C12-15 alkyl sulfate		
Ammonium lauroyl sarcosinate		
Cocamide MEA ethoxylate		
Cocamidopropyl dimethylaminohydroxypyropyl hydrolyzed collagen		
Lauroyl sarcosine		
Myristoyl sarcosine		
Sodium cocoyl sarcosinate		
Sodium lauroyl sarcosinate		
Sodium methyl cocoyl taurate		
Sodium myristoyl sarcosinate		
TEA-cocooyl sarcosinate		
TEA-lauroyl sarcosinate		
 Lubricant		
Aluminum salt octenyl succinate		
Amodimethicone		

Functions

Boron nitride	Stearyl dimethicone	Lanolin substitute—PEG-80 jojoba acid/alcohol
Calcium aluminum borosilicate	Triisostearyl citrate	Lipolytic—Gelidium cartilagineum
Calcium stearate	Triolein	Oxidant—Bamboo peroxide. Hydrogen peroxide.
Caprylic/capric triglyceride	Trisodium HEDTA	Urea peroxide
Coceth-7 carboxylic acid	Triundecanoic	Oxygen carrier—Perfluorodecalin
Coconut (Cocos nucifera) oil	Zinc laurate. Z. stearate	Peroxide stabilizer—Phenacetin. Sodium stannate
Cyclomethicone	Miscellaneous	Scalp stimulant—Birch (Betula alba) leaf extract
Diisodetyl adipate	<i>Adhesion promoter</i> —Glycerin/diethylene glycol/adipate crosspolymer	Sebastonic—Laminaria saccharina extract
Diisostearyl fumarate	<i>Analgesic</i> —Glycol salicylate	Shine enhancer—Hydrolyzed wheat protein
Dimethicone copolyol	<i>Anesthetic</i> —Benzocaine	hydroxypropyl polysiloxane
Glyceryl isostearate. G. oleate	<i>Anti-elastic</i> —Hydrolyzed Ulva lactuca extract	<i>Skin barrier lipid</i> —Ceramide 3, N(27-
Glyceryl polymethacrylate	<i>Anti-itching</i> —Sodium shale oil sulfonate	Stearylxylo-hepiacosanyl) phytosphingosine
Gold of Pleasure oil	<i>Antacid</i> —Magnesium hydroxide. Magnesium silicate. Simethicone	<i>Skin clarifier</i> —Oat (Avena sativa) bran extract
Hyaluronic acid	<i>Antifoam</i> —Dimethicone silylate. Simethicone	<i>Skin purifier</i> —Birch (Betula alba) leaf extract
Hydrogenated coconut oil	<i>Antilipidatic</i> —Laminaria saccharina extract	Substantivity—Dimethicone copolyol
Hydrogenated cottonseed oil	<i>Antipruritic</i> —Coal tar	bishydroxyethylamine. Dimethicone
Hydrogenated palm oil	<i>Antispasmodic</i> —Garlic (Allium sativum) extract	hydroxypropyl trimonium chloride.
Hydrogenated soybean/cottonseed oil	<i>Antiwrinkle</i> —Chinese hibiscus (Hibiscus rosa-sinensis) extract	Trimethylsilylamodimethicone
Hydrogenated soybean oil	<i>Barrier</i> —Glycerin/diethylene glycol/adipate crosspolymer	<i>Sunless tanning</i> —Acetyl tyrosine. Eclipta alba extract in white emulsion
Hydrogenated vegetable oil	<i>Cell regeneration</i> —Glycoproteins. Hydrolyzed Ulva lactuca extract	Tonic—Kiwi (Actinidia chinensis) fruit extract.
Hydrolyzed oat flour	<i>Co-emulsifier</i> —Cholesteryl/behenyl/octylidodecyl lauroyl glutamate. Isododecane	Matricaria (Chamomilla recutita) extract.
Hydroxypropyl guar	<i>Colloid</i> —Gelatin	Orange (Citrus aurantium dulcis) peel extract
Isodecyl stearate	<i>Cooling agent</i> —Menthyl PCA. Menthone glycerin acetal	Viscosity stabilizer—Diisodetyl adipate
Isopropyl lanolate	<i>Detoxifier</i> —Clover (Trifolium pratense) extract	Spreading agent—Stearyl heptanoate
Isostearyl diglyceryl succinate	<i>Dye stabilizer</i> —Uric acid	Wound healing—Comfrey (Symphytum officinale) leaf extract
Jojoba esters	<i>Filler</i> —Mica	Waterproofing agent—PVP/eicosene copolymer.
Lanolin oil	<i>Fragrance stabilizer</i> —2,2',4,4'-Tetrahydroxybenzophenone	PVP/hexadecene copolymer. Tricontanyl PVP
Laureth-3 phosphate	<i>Free radical scavenger</i> —Melanin	
Magnesium myristate. M. stearate	<i>IR filter</i> —Corallina officinalis	Moisture barrier
Mango (Mangifera indica) oil		Acrylates/octylarylamide copolymer
Mineral oil (Paraffinum liquidum)		Betaglucan
Mink oil		C16-18 alkyl methicone
Monostearyl citrate		Cholesterol
Neatsfoot oil		Glycolipids
Oleostearine		Isoeicosane
Partially hydrogenated soybean oil		
PEG-2 stearate		
PEG-4 dilaurate		
PEG-5M		
PEG-9M		
PEG-13M		
PEG-27 lanolin		
PEG-30 lanolin		
PEG-40 lanolin. P. stearate		
PEG-45M		
PEG-90M		
PEG-160M		
PEG/PPG-17/6 copolymer		
Pentaerythrityl tetrapelargonate		
Petrolatum		
Phenethyl dimethicone		
Phenyl methicone		
Polyacrylamidomethylpropane sulfonic acid		
Polybutene		
Polydimethicone copolyol		
Polyglycerol ester of mixed vegetable fatty acids		
Polymethyldisiloxane		
Potassium laurate. P. myristate		
Potassium tallate		
PPG-2 myristyl ether propionate		
PPG-3 myristyl ether		
PPG-9-buteh-12		
PPG-11 stearyl ether		
PPG-12-buteh-16		
PPG-12-PEG-50 lanolin		
PPG-14 butyl ether		
PPG-20 cetyl ether		
PPG-20-buteh-30		
PPG-24-buteh-27		
PPG-28-buteh-35		
PPG-36 oleate		
PPG-40 butyl ether		
Quaternium-79 hydrolyzed keratin		
Quaternium-79 hydrolyzed silk		
Rice (Oryza sativa) starch		
Shea butter (Butyrospermum parkii) extract		
Shorea stenopetala butter		
Silica		
Stearamide MEA. S. MEA-stearate		
Stearoxytrimethylsilane		

BERNEL

CHEMICAL COMPANY

Up to date, innovative technology for the cosmetic industry has been the driving force behind Bernel Chemical Company since its founding in 1982. Combining over 60 years of cosmetic expertise and marketing knowledge, we have introduced more than 20 raw materials for use by the cosmetic chemist.

Our product is innovation. Finding unique materials, such as MARRIX SF and CUPL® PIC, that contribute to the growth of our customers has established Bernel products worldwide.

BERNEL
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174 Grand Ave., Englewood, NJ 07631
Phone: 201-569-8934 • Fax: 201-569-1741

Functions

Isohexadecane	Emblica officinalis extract	Methylsilanol elastinate, M. manuronate
Lanosterol	Ethyl minkate	Milk amino acids
Octyl pelargonate, O. stearate	Eugenia jambolana extract	Mineral oil (Parafinum liquidum)
Polyisobutene	Evening primrose (Oenothera biennis) extract, oil	Molybdenum aspartate
Polyisobutene/isoheptadecacontane	Galla sinensis extract	Mourin apiranga extract
Polyisobutene/isooctadecacontane	Ganoderma lucidum oil	Natto gum
Silica silicate	Ginseng (Panax ginseng) extract	Neurostium speciosum extract
Trihydroxypalmitamidoxypropyl myristyl ether	Gleditsia sinensis extract	Neopentyl glycol dicaprate
Trimethylsiloxystearate	Glycereth-12	Oat (Avena sativa) protein
Moisturizer	Glyceryl alginate, G. collagenate	Octyl hydroxystearate
Acetamidopropyl trimonium chloride	Glyceryl polymethacrylate	Ophiopogon japonicus extract
Adenosine triphosphate	Glycolic acid	Orange (Citrus aurantium dulcis) peel wax
Aesculus chinensis extract	Glycolipids	Palmito extract
Algae (Ascochyllum nodosum) extract	Glycosaminoglycans	Pantethine
Algae extract	Glycosphingolipids	Panthenyl ethyl ether
Aloe barbadensis, A. b. extract	Gnetum amazonicum extract	Paraffin
Ammonium lactate	Grape (Vitis vinifera) seed oil	Partially hydrogenated soybean oil
Amniotic fluid	Hazel (Corylus avellana) nut oil	Peanut (Arachis hypogaea) oil
Apple (Pyrus malus) extract	Honey extract	Pecan (Carya illinoensis) oil
Apricot (Prunus armeniaca) kernel oil	Hyaluronic acid	PEG-4, -6, -8, -12
Arginine PCA	Hybrid safflower (Carthamus tinctorius) oil	PEG-70 mango glycerides
Atelocollagen	Hydrogenated castor oil	PEG-75 shea butter glycerides
Artemisia apicaea extract	Hydrogenated coconut oil	PEG-75 shorea butter glycerides
Astrocarvum murumuru extract	Hydrogenated cottonseed oil	PEG-100 stearate
Avocado (Persea gratissima) extract, oil	Hydrogenated lecithin	Pentaerythrityl isostearate/caprate/caprylate/adipate
Avocado (Persea gratissima) unsaponifiables	Hydrogenated palm oil	Pentaerythrityl stearate/caprate/caprylate/adipate
Babassu (Orbignya oleifera) oil	Hydrogenated polyisobutene	Pentylene glycol
Baccharis gasipaes extract	Hydrogenated soybean oil	Perfluoropolymethylisopropyl ether
Benincasa hispida extract	Hydrogenated soybean/cottonseed oil	Petrolatum
Betaglucan	Hydrogenated vegetable oil	Petroleum wax
Betaine	Hydrolyzed carbolipoprotein	Pfaffia spp. extract
Borage (Borago officinalis) seed oil	Hydrolyzed collagen	Pistachio (Pistacia vera) nut oil
Brazil nut (Bertholletia excelsa) extract, oil	Hydrolyzed elastin	Placental protein
C10-30 cholesterol/lanosterol esters	Hydrolyzed fibronectin	Plankton extract
Calcium pantothenate	Hydrolyzed glycosaminoglycans	Polyamino sugar condensate
Calcium protein complex	Hydrolyzed keratin	Polybutene
Caprylic/capric triglyceride	Hydrolyzed milk protein	Polyunsaturated fatty acids
Caprylic/capric lauric triglyceride	Hydrolyzed oats	Potassium DNA, P. lactate, P. PCA
Caprylic/capric linoleic triglyceride	Hydrolyzed pea protein	PPG-8/SMDI copolymer
Caprylic/capric oleic triglycerides	Hydrolyzed placental protein	PPG-20 methyl glucose ether disisobutate
Cashew (Anacardium occidentale) nut oil	Hydrolyzed rice protein	Propylene glycol dicaprylate/dicaprate
Celastrus paniculata extract	Hydrolyzed transgenic collagen	Propylene glycol dioctanoate
Ceramide 33 (liquid soy extract)	Hydrolyzed serum protein	Pumpkin (Cucurbita pepo) seed oil
Chia (Salvia hispanica) oil	Hydrolyzed silk	Quinoa (Chenopodium quinoa) extract
Chinese hibiscus (Hibiscus rosa-sinensis) extract	Hydrolyzed sweet almond protein	Rapeseed (Brassica campestris) oil
Chitin	Hydrolyzed wheat protein	Rehmannia chinensis extract
Chitosan, C. PCA	Hydroxyethyl chitosan	Rice (Oryza sativa) bran oil
Cholesteric esters	Inositol	Rose Water
Cholesterol	Isodecyl salicylate	Royal jelly extract
Cholesteryl behenyl/octyldodecyl lauroyl glutamate	Isostearyl hydrolyzed animal protein	Saccharide isomerate
Cocodimonium hydroxypropyl hydrolyzed collagen	Jojoba (Buxus chinensis) oil	Saccharomyces lysate extract
Cocodimonium hydroxypropyl hydrolyzed silk	Jojoba esters	Saccharomyces/soy protein ferment
Cocodimonium hydroxypropyl hydrolyzed wheat protein	Keratin amino acids	Safflower (Carthamus tinctorius) oil
Cocodimonium hydroxypropyl silk amino acids	Kiwi (Actinidia chinensis) fruit extract	Selenium aspartate, S. protein complex
Collagen	Kola (Cola acuminata) extract	Sericin
Collagen amino acids, C. phthalate	Kukui (Aleurites moluccana) nut oil	Serum albumin
Copper aspartate, C. protein complex	Lactamide DGA, L. MEA	Sesame (Sesamum indicum) oil
Corn (Zea mays) oil	Lactic acid	Shea butter (Butyrospermum parkii)
Cottonseed (Gossypium) oil	Lactobacillus/whey ferment	Shea butter (Butyrospermum parkii) extract
Crataegus cuneata extract	Lactococcus hydrolysate	Shorea stenoptera butter
Cucumber (Cucumis sativus) extract	Lactoyl methylsilanol elastinate	Silk amino acids
Desamido collagen	Lanolin alcohol	Sodium carboxymethyl beta-glucan
Dicaprylyl maleate	Lauryl PCA	Sodium chondroitin sulfate
Diisocetyl dodecanedioate	Lecithin	Sodium DNA, S. hyaluronate
Diisostearyl adipate	Lesquerella fendleri oil	Sodium lactate, S. PCA
Dimethyl hyaluronate	Liposomes	Soluble collagen
Dimethylsilanol hyaluronate	Lysine PCA	Soluble transgenic elastin
Diocetyl dodecyl dimer dilinoleate	Macadamia ternifolia nut oil	Soybean (Glycine soja) oil
Diocetyl dodecyl dodecanedioate	Magnesium aspartate	Spherical cellulose acetate
Dipentaerythritol fatty acid ester	Malititol	Spondias amara extract
Dog rose (Rosa canina) hips extract	Manganese aspartate	Squalene
Dog rose (Rosa canina) seed extract	Mango (Mangifera indica) oil	Stomach extract
Echitea glauca extract	Mannan	Sunflower (Helianthus annuus) seed oil
Elastin amino acids	Marine polyaminosaccharide	Superoxide dismutase

Functions

Tormentil (<i>Potentilla erecta</i>) extract	Stearyl stearate	Ammonium acrylates/acrylonitrile copolymer
Trehalose	Styrene homopolymer	AMP-acrylates copolymer
Tridecanoin	Styrene/acrylates copolymer	AMP-isostearyl hydrolyzed collagen
Vegetable oil	Styrene/PVP copolymer	Butylester of PVM-MA copolymer
Walnut (<i>Juglans regia</i>) oil	Triisostearin PEG-6 esters	Calcium carrageenan
Watercress (<i>Nasturtium officinale</i>) extract	Plasticizer	Carboxylated vinylacetate terpolymer
Wheat (<i>Triticum vulgare</i>) germ extract, germ oil	Acetyl tributyl citrate	Ceteareth-2 phosphate
Yarrow (<i>Achillea millefolium</i>) extract	Acetyl triethyl citrate	Ceteareth-5 phosphate
Wheat amino acids	AMP-isostearyl hydrolyzed wheat protein	Ceteareth-10 phosphate
Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)	AMPD-isostearyl hydrolyzed collagen	Ceteareth-29, -34
Yogurt filtrate	Cyclohexane dimethanol dibenzoate	Coco-glucoside
Zinc aspartate	Dibutyl phthalate	Cocodimonium hydroxypropyl oxyethyl cellulose
Ziziphus jujuba extract	Diethyl phthalate	C12-13 pareth-4, -9, -23
Naturilizer	Diethylene glycol dibenzoate	DEA-ceteareth-2-phosphate
2-Aminobutanol	Diisopropyl sebacate	DEA-oleth-5-phosphate
Aminoethyl propanediol	Dimethicone copolyol	DEA-oleth-20-phosphate
Aminomethyl propanol	Dimethyl phthalate	Diglycol/CHDM/isophthalates/SIP copolymer
Aminomethyl propanol	Dipropylene glycol dibenzoate	Diisopropyl dimer dilinoleate
Ammonium carbonate	Ethyl ester of hydrolyzed keratin	Diisostearyl trimethylolpropane siloxy silicate
Calcium hydroxide	Glycerol tribenzilate	Diisostearyl dimer dilinoleate
Diethanolamine	Glycol	Dilinoleic acid
Ethanolamine	Hydrolyzed serum protein	Dodecanedioic acid/cetearyl alcohol/glycol copolymer
Glucamine	Isocetyl salicylate	Eclipta alba extract
Isopropanolamine	Isodecyl benzoate	Ethyl ester of PVM/MA copolymer
Isopropylamine	Isoeicosane	Ethylene/acrylic acid copolymer
2-Methyl-4-hydroxypyrrolidine	Isostearyl lanolate	Ethylene/VA copolymer
Morpholine	Isostearyl hydrolyzed collagen	Glycereth-26 phosphate
Sodium bromate	Lauroyl hydrolyzed collagen	Hyaluronic acid
Succinic acid	Manne collagen	Hydrolyzed RNA
Tetrahydroxypropyl ethylenediamine	Monostearyl citrate	Hydrolyzed wheat protein polysiloxane polymer
Triethanolamine	Neopentyl glycol dibenzoate	Hydroxypropyltrimonium hydrolyzed collagen
Tromethamine	Octyl benzoate, O. laurate	Hydroxypropyltrimonium hydrolyzed wheat protein
Oil absorbent	PEG-60 shea butter glycides	Laneth-40
Hydrated silica	Pentaerythriyl tetrabenzilate	Lauridimonium hydroxypropyl hydrolyzed soy protein
Polymethyl methacrylate	Polyoxyethylene glycol dibenzoate	Methacryloyl ethyl betaine/acrylates copolymer
Silicon dioxide hydrate	Polypropylene glycol dibenzoate	Octylacrylamide/acrylates/butylaminoethyl methacrylate copolymer
Walnut (<i>Juglans regia</i>) shell powder	PPG-12-PEG-50 lanolin	Oleth-2 phosphate
Ointment base	PPG-20 cetyl ether	Oleth-5 phosphate
Borage (<i>Borago officinalis</i>) seed oil	PPG-20 lanolin alcohol ether	PEG-3 lanolate
Caprylic/capric/stearic triglyceride	Propylene glycol dibenzoate	PEG-4 stearate
Glyceryl cocoate	Propylene glycol myristyl ether acetate	PEG-5M
Hydrogenated coco-glycides	Rice (<i>Oryza sativa</i>) bran wax	PEG-7 glyceryl cocoate
Lanolin	Serum protein	PEG-8 glyceryl laurate
Mink oil	Tosylamide/epoxy resin	PEG-8/SMDI copolymer
Oleostearine	Triacetin	PEG-9 castor oil
Tallow	Tributyl citrate	PEG-9M
Opacifier	Triethyl citrate	PEG-11 babassu glycides
Barium sulfate	Trimethyl pentanediol dibenzoate	PEG-12 palm kernel glycides
C12-16 alcohols	Trimethyllethanetribenzoate	PEG-12 stearate
Cetearyl octanoate	Polish	PEG-14 avocado glycides
Cetyl myristate, C. palmitate	Acrylates copolymer	PEG-15 glyceryl laurate
Cocamidopropyl lauryl ether	Aluminum silicate	PEG-20 corn glycides
Glyceryl distearate	Neatsfoot oil	PEG-20 evening primrose glycides
Glyceryl hydroxystearate	Tallow	PEG-20 glyceryl oleate
Glyceryl myristate, G. stearate	Polymer	PEG-22 oleate
Glycol distearate, G. stearate	Acrylamide sodium acrylate copolymer	PEG-23M
Magnesium myristate	Acrylates-VA crosspolymer	PEG-29 castor oil
PEG-2 distearate, P. stearate	Acrylates/acrylamide copolymer	PEG-42 babassu glycides
PEG-2 stearate SE	Acrylates/hydroxyesters acrylates copolymer	PEG-45 safflower glycides
PEG-3 distearate	Acrylates/octylacrylamide copolymer	PEG-45M
Propylene glycol myristate, P. g. stearate	Acrylates/stearate-20 methacrylate copolymer	PEG-60 evening primrose glycides
Stearamide	Adipic acid-epoxypropyl diethylenetriamine copolymer	PEG-60 hydrogenated castor oil
Stearamide DIBA-stearate	Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer	PEG-75 castor oil
Stearamide MEA	Ammonium acrylates copolymer	PEG-90M
Stearamide MEA-stearate		PEG-120 distearate
Stearamidopropyl dimethylamine lactate		

3 BETTER IDEAS.



1 BETTER SOURCE.



Functions

PEG-150 lanolin
 PEG-160M
 PG-hydroxycellulose lauryldimonium chloride
 PG-hydroxyethylcellulose cocodimonium chloride
 PG-hydroxyethylcellulose stearylmonium chloride
 Polyethylene. ionomer
 Polyethylene. micronized
 Polyethylene. oxidized
 Polyglyceryl-2 polyhydroxystearate
 Polymethacrylamidopropyltrimonium chloride
 Polyquaternium-6. -7. -10. -11. -22. -39
 Polysilicone-8
 Potassium alginate
 Potassium lauroyl collagen amino acids
 Potassium lauroyl hydrolyzed soy protein
 Potassium lauroyl wheat amino acids
 PPG-8/SMDI copolymer
 PPG-12/SMDI copolymer
 PPG-51/SMDI copolymer
 PVM/MA decadiene crosspolymer
 PVP/dimethylaminoethylmethacrylate copolymer
 PVP/VA copolymer
 Sodium cocoyl hydrolyzed wheat protein
 Steardimonium hydroxypropyl hydrolyzed wheat protein
 Steareth-2 phosphate
 TEA-acrylates/acrylonitrogens copolymer
 Tosylamide/epoxy resin
 Tosylamide/formaldehyde resin
 Trideceth-5. -6. -7. -8
 VA/butyl maleate/isobornyl acrylate copolymer
 VA/crotonates/vinyl neodecanoate copolymer
 Vinyl caprolactam/PVP/
 dimethylaminoethylmethacrylate copolymer
 Wheat (Triticum vulgare) protein
 Xanthan gum

Powder
 Acrylates copolymer, spherical powder
 Altapulgite
 Boron nitride
 Calcium aluminum borosilicate
 Calcium carbonate
 Cellulose triacetate
 Corn (Zea mays) cob powder, starch
 Hydrogenated jojoba wax
 Magnesium carbonate. M. myristate
 Magnesium stearate
 Mica
 Microcrystalline cellulose
 Nylon-6
 Nylon powder
 Oat (Avena sativa) starch
 Polyamide 12
 Polyethylene
 Polymethyl methacrylate
 Polymethylsilsesquioxane
 PTFE
 Silica
 Silk powder
 Spherical cellulose acetate
 Talc
 Tapioca dextrin
 Zinc laurate
Powder, absorbent
 Aluminum starch octenylsuccinate
 Clays (white, yellow, red, green, pink)
 Sorbitol
 Tapioca
Preservative
 Alcohol
 Ascorbic acid
 Ascorbyl palmitate

Benzalkonium chloride
 Benzethonium chloride
 Benzoic acid
 Benzyl alcohol
 Benzylparaben
 5-Bromo-3-nitro-1,3-dioxane
 2-Bromo-2-nitropropane-1,3-diol
 Butylparaben
 Calcium propionate
 Cerizonium bromide
 Cetyl pyridinium chloride
 Chloroxylene
 Chlorphenesin
 o-Cymen-5-ol
 Diazolidinyl urea
 Dichlorobenzyl alcohol
 Dichlorophene
 Diiodomethyltolylsulfone
 Dimethyl hydroxymethyl pyrazole
 Dimethyl oxazolidine
 Disodium EDTA
 DMDM hydantoin
 EDTA
 Erythorbic acid
 7-Ethylbicyclooxazolidine
 Ethylparaben
 Fomistopsis officinalis oil
 Formaldehyde
 Gluconal
 Glycerol laurate
 HEDTA
 Hexamidine diisethionate
 Hexetidine
 Imidazolidinyl urea
 Isobutylparaben
 Isopropyl sorbate
 Isopropylparaben
 MDM hydantoin
 Methenammonium chloride
 Methyl paraben sodium
 Methylchloroisothiazolinone
 Methylbromo glutaronitrile
 Methylisothiazolinone
Methylparaben
 Mushroom (Cordyceps sambolifera) extract
 Myrritionium bromide
 Pentasodium pentetate
 Pentene acid
 Phenetyl alcohol
 Phenol
 Phenyl mercuric acetate
 o-Phenylphenol
 Polyaminopropyl biguanide
 Polymerbox bicyclic oxazolidine
 Potassium sorbate
 Propylparaben
 Quaternium-15
 Salicylic acid
 Sodium benzoate. S. bisulfate
 Sodium butylparaben. S. dehydroacetate
 Sodium erythorbate. S. ethyl paraben
 Sodium hydroxymethylglycinate
 Sodium metabisulfite. S. methylparaben
 Sodium o-phenylphenate
 Sodium propionate. S. propylparaben
 Sodium pyrithione. S. salicylate
 Sodium sulfite
 Sorbic acid
 Tetrasodium EDTA
 Thimerosal
 Thymol
 Tris (hydroxymethyl) niromethane
 Trisodium EDTA. T. HEDTA
 Usnic acid
 Zinc PCA
Propellant
 Butane
 Dimethyl ether
 Hydrotluorocarbon 152a

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Functions

Isobutane	Sodium caseinate	Liposomes
Propane	Sodium cocoyl hydrolyzed collagen	Magnesium sulfate hepta-hydrate
Protein	Sodium cocoyl hydrolyzed soy protein	Octylidodecyl behenate, O. myristate
Albumen	Sodium myristoyl hydrolyzed collagen	bis-Octylidodecyl stearoyl dimer dilinoleate
Atelocollagen	Sodium oleoyl hydrolyzed collagen	Octylidodecyl stearoyl stearate
Bletia hyacinthina extract	Sodium stearoyl hydrolyzed collagen	Octyl hydroxystearate
Chrysanthemum monstrosa extract	Sodium undecylenoyl hydrolyzed collagen	PEG-3 stearate
Cocodimonium hydroxypropyl hydrolyzed collagen	Sodium/TEA-lauroyl hydrolyzed collagen	PEG-4 oleamide
Cocodimonium hydroxypropyl hydrolyzed keratin	Sodium/TEA-lauroyl hydrolyzed keratin	PEG-6 capric/caprylic glycerides
Cocodimonium hydroxypropyl hydrolyzed soy protein	Soluble collagen	PEG-7 glyceryl cocoate
Cocodimonium hydroxypropyl hydrolyzed wheat protein	Soluble keratin	PEG-16
Cocodimonium hydroxypropyl hydrolyzed wheat protein	Soluble wheat protein	Propylene glycol dipelargonate
Cocoyl hydrolyzed collagen	Soy (Glycine soja) protein	
Collagen, C. phthalate	Steardimonium hydroxypropyl hydrolyzed collagen	Resin
Collagen amino-polysiloxane hydrolyzate	Steardimonium hydroxyethyl hydrolyzed collagen	Acrylates/hydroxyesters acrylates copolymer
Deoxyribonucleic acid	TEA-cocoyl hydrolyzed collagen	Ethylene vinyl acetate
Dexamido collagen	TEA-cocoyl hydrolyzed soy protein	Glyceryl abietate
Elastin amino acids	TEA-lauroyl collagen amino acids	Methacryloyl ethyl betaine/acrylates copolymer
Embryo extract	TEA-lauroyl keratin amino acids	+Methyl benzenesulfonamide
Ethyl ester of hydrolyzed animal protein	Trachea hydrolysate	Polypropylene
Fibronectin	Triethonium hydrolyzed collagen ethosulfate	Polyquaternium-16, -44
Gelatin	Wheat (Triticum vulgare) germ extract, protein	Sucrose benzoate
Human placental protein	Wheat amino acids	
Hydrolyzed collagen	Wheat peptide	Sequestrant
Hydrolyzed extensin	Wheat protein	Calcium acetate, C. phosphate, C. sulfate
Hydrolyzed fish protein		Encapsulation and entrapment systems
Hydrolyzed hemoglobin	Protein, hydrolyzed	Pentasodium triphosphate
Hydrolyzed keratin	Ethyl ester of hydrolyzed silk	Phosphoric acid
Hydrolyzed lactalbumin	Hydrolyzed casein	Potassium phosphate, P. sodium tartrate
Hydrolyzed milk protein	Hydrolyzed elastin	Silicon dioxide hydrate
Hydrolyzed soy flour	Hydrolyzed mushroom (Tricholoma matsutake) extract	Sodium citrate, S. gluconate
Hydrolyzed sweet almond protein	Hydrolyzed pea protein	Sorbitol
Hydroxypropyltrimonium hydrolyzed collagen	Hydrolyzed rice protein	Tartaric acid
Isostearoyl hydrolyzed collagen	Hydrolyzed serum protein	Tripotassium EDTA
Keratin	Hydrolyzed silk	Trisodium NTA
Lactoferrin	Hydrolyzed soy protein	
Lactoglobulin	Hydrolyzed vegetable protein	Silicone
Lauryldimonium hydroxypropyl hydrolyzed collagen	Hydrolyzed wheat protein	Amino bispropyl dimethicone
Marine collagen	Hydroxypropyltrimonium hydrolyzed casein	Ammonium dimethicone copolyol sulfate
Methylsilanol elastinase	Hydroxypropyltrimonium hydrolyzed silk	Amodimethicone
Potassium abietoyl hydrolyzed collagen	Hydroxypropyltrimonium hydrolyzed soy protein	Behenoxy dimethicone
Potassium cocoyl hydrolyzed collagen	Hydroxypropyltrimonium hydrolyzed wheat protein	C16-18 alkyl methicone
Potassium myristoyl hydrolyzed collagen		Cetyl dimethicone copolyol
Potassium oleoyl hydrolyzed collagen	Reducing agent	Cyclomethicone Diisostearyl trimethylolpropane siloxy silicate
Potassium undecylenoyl hydrolyzed collagen	Dimyristyl thiodipropionate	Diisododecyl adipate
Propyltrimonium hydrolyzed collagen	Hydrolyzed zein, iodized	Diisostearyl trimethylolpropane siloxy silicate
Propyltrimonium hydrolyzed soy protein	Hydrolyzed zein, sulfonized	Dimethicone
Propyltrimonium hydrolyzed wheat protein	Zinc formaldehyde sulfoxylate	Dimethicone copolyol
Protein hydrolysates		Dimethicone copolyol almondate
Quaternium-79 hydrolyzed keratin	Refatting agent	Dimethicone copolyol isosteareate
Quaternium-79 hydrolyzed silk	Caprylic/capric triglyceride PEG-4 esters	Dimethicone copolyol olivate, D. c. phthalate
Rice peptide	Cocamide MIPA	Dimethicone copolyolamine
RNA	Diisostearyl dimer dilinoleate	Dimethiconol fluoroalcohol dilinoleic acid
Serum albumin, S. protein	Hydrogenated palm kernel glycerides	Dimethiconol hydroxystearate, D. stearate
Silk powder	Isostearyl erucate, I. isostearate	Diphenyl dimethicone
	Lecithin	Disodium-PG-propyldimethicone thiosulfate
		Isopropyl hydroxybutyramide dimethicone copolyol
		Methicone

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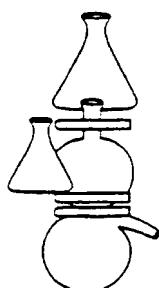
Functions

Ociamethyl cyclotetrasiloxane	Potassium cocoyl hydrolyzed collagen	Isodecyl salicylate
Phenyl methicone, P. trimethicone	Retinyl palmitate polypeptide	Jojoba (<i>Buxus chinensis</i>) oil
Polyether Trisiloxane	<i>Salvia miltiorrhiza</i> extract	Lady's Thistle (<i>Silybum marianum</i>) extract
Polymethylsilsesquioxane	Silt	Laminaria japonica extract
Polysilicone-8	Sodium cocoyl hydrolyzed collagen	Ligusticum jeholense extract
Quaternium-80	Soluble transgenic elastin	Liposomes
Silicone quaternium-1, -8	Stearammonium hydroxyethyl hydrolyzed collagen	Magnolia spp. extract
Sodium-PG-propyl thiosulfate dimethicone	Stearyl methicone	Mango kernel oil
Stearoxydimethicone/dimethicone copolymer		Marsilea minuta extract
Trimethylsilylamodimethicone		Melaleuca hyperifolia extract
Skin calming agent		Melaleuca uncinata extract
Cornflower (<i>Centaurea cyanus</i>) extract		Melaleuca wilsonii extract
Fennel (<i>Foeniculum vulgare</i>) extract		Methylsilanol in PEG-8 glyceryl cocoate
Fenugreek extract		Oat (<i>Avena sativa</i>) meal
Linden (<i>Tilia cordata</i>) extract		Oyster (<i>Ostrea</i>) shell extract
Valerian (<i>Valeriana officinalis</i>) extract		Palmitamidodecanediol
Skin cleanser		Pearls (<i>Margarita margarita</i>)
Dog rose (<i>Rosa canina</i>) hips extract		Pentahydrosqualene
Papaya (<i>Carica papaya</i>) extract		Perfluorodecalin
Peach (<i>Prunus persica</i>) extract		Perfluoropolymethylisopropyl ether
Rose (<i>Rosa multiflora</i>) extract		Petroatum
Willow (<i>Salix alba</i>) extract		PEG-8/SMDI copolymer
Skin conditioner		PEG-42 Ebinko ceramides extract
Artemisia apicea extract		Pfaffia spp. extract
Astrocarvum iucuma extract		Phosphoipid
Bacris gasipaes extract		Plankton extract
Biotin		Polygonum multiflorum extract
Bishydroxethyl bisceyl malonamide		Pongamol
Bletia hyacinthina extract		PPG-12/SMDI Copolymer
Borage (<i>Borago officinalis</i>) seed oil		PPG-51,SMDI Copolymer
Borageamidopropyl phosphatidyl PG-dimonium chloride		Propyltrimonium hydrolyzed collagen
Carbocysteine		Quinoa (<i>Chenopodium quinoa</i>) extract, oil
Catalpa kaempfera extract		<i>Salvia miltiorrhiza</i> extract
Coco phosphatidyl PG-dimonium chloride		Sambucus nigra extract
Cocodimonium hydroxypropyl hydrolyzed keratin		Shark liver oil
Collagen amino acids		Shorea robusta extract
Cyclomethicone		Sodium chondroitin sulfate
Dimethicone, D. copolvol acetate		Soluble transgenic elastin
Emblica officinalis extract		Stearammonium hydroxyethyl hydrolyzed collagen
Equisetum arvense extract		Sterculia foetida extract
Ethyl ester of hydrolyzed animal protein		Superoxide dismutase
Evening primrose (<i>Oenothera biennis</i>) oil		Trachea hydrolysate
Fomes fomentarius extract		Wheat (<i>Triticum vulgare</i>) germ extract, protein
Fomisopsis officinalis oil		White nettle (<i>Lamium album</i>) extract
Gelatin		Withania somniferum extract
Ginseng hydroxypropyltrimonium chloride butylene glycol		Xanthoxylum bungeanum extract
Glycolipids		Zinc oxide
Glycosphingolipids		
Gnetum amazonicum extract		
Honey (Miel)		
Hydrolyzed carbolipoprotein		
Hydrolyzed elastin		
Hydrolyzed pea protein		
Hydrolyzed rice protein		
Hydrolyzed serum protein		
Hydrolyzed silk		
Hydrolyzed soy protein		
Hydrolyzed vegetable protein		
Hydrolyzed wheat protein		
Inga edulis extract		
Kiwi (<i>Actinidia chinensis</i>) fruit extract		
Laminaria japonica extract		
Lecithin		
Marsilea minuta extract		
Nettle (<i>Urtica dioica</i>) extract		
Palmitamidodecanediol		
Pearl (<i>Margarita margarita</i>)		
PEG-42 Ebinko ceramides extract		
Phenoxytrimethicone		
Phytosterol		
Polygonum multiflorum extract		
Polysiloxane-7, -22, -34		
Propyltrimonium chloride		

Functions

Solubilizer			
Acetyl monoethanolamine	PEG-15 castor oil	PPG-3 isosteareth-9	
Almond oil PEG-6 esters	PEG-18 stearate	PPG-3 isoceteth-20 acetate	
2-Aminobutanol	PEG-20 glyceryl isostearate, P. g. laurate	PPG-5-ceteth-10 phosphate	
Aminoethyl propanediol	PEG-20 glyceryl oleate, P. g. stearate	PPG-5-ceteth-20	
Aminomethyl propanediol, A. propanol	PEG-20 methyl glucose sesquistearate	PPG-6-decytetradeceth-12, -20, -30	
Apricot kernel oil PEG-6 esters	PEG-20 sorbitan isostearate	PPG-12-PEG-65 lanolin oil	
Benzalkonium chloride	PEG-20 sorbitan tristearate	PPG-15 stearyl ether	
Butoxydiglycol	PEG-24 hydrogenated lanolin	PPG-18 butyl ether	
Butyl glucoside	PEG-25 castor oil	PPG-24 butyl ether	
Buylene glycol	PEG-25 hydrogenated castor oil	PPG-26-buteth-26	
Butyloctanol	PEG-30 castor oil	PPG-33 butyl ether	
Capric-caprylic mono-diglyceride	PEG-30 glyceryl cocoate	PPG-33-buteth-45	
Capryl caprylylglucoside	PEG-30 glyceryl isosteareate	PPG-40-PEG-60 lanolin oil	
Caprylic/capric triglyceride	PEG-30 glyceryl laurate	PPG-50 cetyl ether	
Caprylic/capric/linoleic triglyceride	PEG-30 glyceryl oleate	Propylene glycol dicaprylate, dicaprylate/	
Caprylic/capric/oleic triglycerides	PEG-30 glyceryl stearate	dicaprate	
Caprylyl/capryl glucoside	PEG-33 castor oil	Ricinoleamide DEA	
Ceteareth-20	PEG-35 castor oil	Ricinoleth-40	
Ceteth-10	PEG-36 castor oil	Sodium alpha olefin sulfonate	
Cetyl PPG-3 isodeceth-7 carboxylate	PEG-40 castor oil	Sodium lauryl sulfate	
Cholesterol	PEG-40 glyceryl laurate, P. g. stearate	Sodium methylnaphthalenesulfonate	
Corn oil PEG-6 esters	PEG-40 hydrogenated castor oil	Triethanolamine	
Decaglycerol monodioleate	PEG-40 hydrogenated castor oil PCA isostearate	Triocanol	
Diethanolamine	PEG-40 sorbitan diisostearate	Tromethamine	
Dilaureth-10 phosphate	PEG-45 palm kernel glycerides		
Dimethyl octylenediol	PEG-48 hydrogenated castor oil		
Dioloth-8 phosphate	PEG-50 castor oil		
Glycereht-7 -26	PEG-50 hydrogenated castor oil		
Glyceryl caprylate, G. dilaurate	PEG-60 almond glycerides		
Glyceryl caprylate/caprate	PEG-60 castor oil		
Isoeicosane	PEG-60 mango glycerides		
Isopropanolamine	PEG-60 shea butter glycerides		
Isosteareth-20	PEG-60 shorea butter glycerides		
Laneth-5, -15	PEG-60 hydrogenated castor oil		
Laureth-23	PEG-70 jojoba acid/alcohol		
Methylated cyclodextrin	PEG-80 castor oil		
Myreth-3	PEG-80 sorbitan laurate		
Myreth-3-octanoate	PEG-100 castor oil		
Nonoxynol-10, -12, -14, -40, -50	PEG-100 hydrogenated castor oil		
Octoxynol-11, -40	PEG-120 jojoba acid/alcohol		
Oleoamphohydroxypropylsulfonate	PEG-200 trihydroxystearin		
Oleth-3, -5, -10, -15, -20, -25, -50	PoloXamer 407		
Oleth-20 phosphate	Polyglyceryl-3 oleate		
PEG-4, -6, -8, -12, -16, -20, -32, -40,	Polyglyceryl-6 dioleate		
PEG-4 dilaurate	Polyglyceryl-10 decanoate, P. tetraoleate		
PEG-6 capric/caprylic glycerides	Polysorbate 20, 60, 80		
PEG-6 methyl ether	PPG-2-isodeceth-4, -6, -9, -12		
PEG-8 distearate			
PEG-12 laurate			

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Functions

Dipropylene glycol dibenzoate	Glyceryl diisostearate, G. stearate SE	<u>Superfattening agent</u>
Ethoxydiglycol	Glyceryl mono-di-tri-caprylate	Linoleamide DEA
Ethyl acetate, E. lactate	Hydrogenated coco-glycerides	PEG-20 almond glycerides
Ethyl myristate, E. oleate	Hydrogenated C12-18 triglycerides	PEG-60 lanolin
2-Ethylhexyl isostearate	Hydrogenated tallow glycerides	PEG-75 lanolin
Glycerin	Hydrolyzed oat flour	<u>Surfactant</u>
Glycosurfact	Hydroxyoctacosanyl hydroxystearate	Alkyl dimethyl betaine
Hepiane	Karaya (<i>Sterculia urens</i>) gum	Alkyldimethylamine oxide
Hexyl alcohol	Laureth-3	Ammonium cocoyl sarcosinate
Hexylene glycol	Maltitol	Ammonium C12-15 alkyl sulfate
Isobutyl stearate	Methyleated cyclodextrin	Ammonium dimethicone copolyol sulfate
Isocetyl salicylate	Oleamide	Ammonium laureth-5 sulfate
Isodecyl benzoate, I. isononanoate	PEG-40 stearate	Ammonium laureth-12 sulfate
Isodecyl octanoate, I. oleate	PEG-40/dodecyl glycol copolymer	Ammonium laureth sulfate
Isododecane	Perfluoropolymethylisopropyl ether	Ammonium lauryl sarcosinate
Isoterosane	Polyethylene paste	Ammonium lauryl sulfate, A.I. sulfosuccinate
Isohexadecane	PPG-5 lanolin wax	Ammonium myreth sulfate
Isopropyl alcohol, I. myristate	PPG-7-butein-10	Ammonium nonoxynol 4 sulfate
Isostearyl stearoyl stearate	PPG-10 cetyl ether phosphate	Azelamide MEA
Laureth-2 acetate	Propylene carbonate, P. glycol alginate	C20-40 alcohol ethoxylate
Methoxydiglycol	PVM/MA decadiene crosspolymer	C30-50 alcohol ethoxylate
Methoxvisopropanol	Sodium acrylates/vinyl isodecanoate crosspolymer	C40-60 alcohol ethoxylate
Methyl alcohol	Sodium carbomer	Calcium dodecylbenzene sulfonate
Methyl propanediol	Sorbitan laurate	Calcium laurate
Methylene chloride	Stearic hydrazide	Ceteareth-2 phosphate
MEK	2,2',4,4'-Tetrahydroxybenzophenone	Ceteareth-5 phosphate
MIBK	Tricaprin	Ceteareth-10 phosphate
Morpholine	Tricaprylin	Cetoleth-25
Octyl benzoate, O. isononanoate	Trilauryl	Cetyl betaine, C. phosphate
Octyl laurate, O. palmitate	Trimyristin	Cocamide MEA ethoxylate
Ocvidodecyl lactate	Tripalmitin	Cocamidopropyl betaine, potassium salt
Olive oil PEG-6 esters	Tristearin	Cocamidopropyl betaine ammonium salt
Peanut oil PEG-6 esters	<u>Stimulant</u>	Cocamidopropyl hydroxy sultaine
Pentane	Capiscum frutescens extract	Cocamidopropyl hydroxy sultaine, ammonium salt
Petroleum distillates	Eleuthero ginseng (<i>Acanthopanax senticosus</i>) extract	Cocamidopropyl hydroxy sultaine, potassium salt
PEG-6 methyl ether	Guarana (<i>Paullinia cupana</i>) extract	Cocamidopropylamine oxide
PEG-12	Lazycoccus hydrolysate	Coco-7 carboxylic acid
PEG-20 hydrogenated castor oil	Methylsilanol elastinate	Coco-glucoside
PEG-33 castor oil	Methylsilanol hydroxyproline aspartate	Cocoamphodiacetate lauryl-laureth sulfate
PEG-50 glyceryl cocoate	TEA-hydroiodide	Cocoamphodiacetate lauryl sulfate
Polyglyceryl-2 dioleate	Tocopherol nicotinate	Cocoamphodiacetate trideceth sulfate
Polyglyceryl-3 diisostearate	Urocanic acid	Coco phosphatidyl PG-dimonium chloride
Polyoxyethylene glycol dibenzoate	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)	N-Cocoyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate
Polypropylene glycol dibenzoate	Zedoary (<i>Curcuma zedoaria</i>) oil	Cocoyl glutamic acid
PPG-2 myristyl ether propionate	Zinc DNA	Cocoyl hydrolyzed soy protein
PPG-3	<u>Sunscreen</u>	Cocoyl hydroxethyl imidazoline
PPG-20 lanolin alcohol ether	Basil (<i>Basilicum sannum</i>) oil extract	C11-15 pareth-9, -12, -20, -30, -40
Propyl alcohol	Basil (<i>Ocimum basilicum</i>) extract	C12-13 pareth sulfate
Propylene carbonate	Benzophenone-3 →	C12-13 pareth-5 carboxylic acid
Propylene glycol	3-Benzylidene camphor	C12-15 pareth-12
Propylene glycol dibenzoate	Borojoa sorbifolia extract	C14-15 pareth-8 carboxylic acid
Propylene glycol methyl ether	C12-15 alkyl benzoate	DEA-oleth-5-phosphate
Propylene glycol myristate	Coffee (<i>Coffea arabica</i>) bean extract	DEA-oleth-20-phosphate
Pyridine	Ethyl salicylate	Deceth-3, -6, -8
Sesame (<i>Sesamum indicum</i>) oil	Glyceryl PABA	Decyltetradeceth-25
Stearyl heptanoate	Homosalate	Diethareth-10 phosphoric acid
Toluene	Hydroquinone-beta-D-glucopyranoside	Dimethicone copolyol
Xylene	Isoamyl p-methoxycinnamate	Dimethicone copolyol almondate, D. c. isostearate
<u>SPF booster</u>	Isopropylbenzyl salicylate	Dimethicone copolyol laurate, D. c. olivate
Borojoa sorbifolia extract	Job's tears (<i>Coix lacryma-jobi</i>) extract	Dimethicone copolyol phthalate
Isohexadecyl salicylate	Menthyl anthranilate	Dimethicone copolyolamine
Styrene/acrylates copolymer	Octyl dimethyl PABA, O. methoxycinnamate	Dimethicone propyl PG-betaine
Titanium dioxide	Octyl salicylate, O. urazone	Diocryldodeceth-2 lauroyl glutamate
Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)	Oryzanol	Diocryldodeceth-5 lauroyl glutamate
<u>Stabilizer</u>	Pansy (<i>Viola tricolor</i>) extract	Disodium caproloamphodiacetate
Acrylates-VA crosspolymer	PEG-25 PABA	Disodium cocoamphodiacetate
Acrylates/ceteth-20 methacrylates copolymer	Phenylbenzimidazole sulfonic acid	Disodium hydrogenated tallow glutamate
Acrylates/steareth-20 methacrylate copolymer	Rice (<i>Oryza sativa</i>) bran oil	Disodium laneth-5 sulfosuccinate
Acrylates/vinyl isodecanoate crosspolymer	TEA-salicylate	Disodium lauramido MEA-sulfosuccinate
Alkyldimethylamine oxide	Titanium dioxide	Disodium laureth sulfosuccinate
C10 polycarbamyl polyglycol ester	<u>Sunscreen UVB</u>	Disodium oleamide MIPA-sulfosuccinate
Calcium alginate	Benzophenone-5	Disodium oleamide PEG-2 sulfosuccinate
Cocamidopropyl dimethylamine lactate	Eclipta alba extract	Disodium oleth-3 sulfosuccinate
Cocamine oxide	PEG-25 PABA	Disodium ricinoleamido MEA-sulfosuccinate
Colloidal silica sols	Steareth-100	Disodium tallamido MEA-sulfosuccinate
Cyclodextrin	Tridecyl salicylate	Disteareth-2 lauroyl glutamate
Disodium EDTA		
Gellan gum		

Functions

Disteareth-5 lauroyl glutamate	PEG-80 jojoba oil. P. sorbitan laurate	Sodium lauroyl glutamate
Ethoxylated fatty alcohol	PEG-120 jojoba oil	Sodium lauroyl hydrolyzed collagen
Ethoxylated glycerol sorbitan saturated fatty acid ester	Pentasodium triphosphate	Sodium lauroyl sarcosinate, S. I. laurate
Ethoxylated glycerol sorbitan unsaturated fatty acid ester	Poloxymer 101, 122	Sodium magnesium laureth sulfate
Glycereth-25 PCA isosteareate	Polyglyceryl-2 dioleate	Sodium methyl cocoyl taurate
Glycereth-26 phosphate	Polysiloxane-polyether copolymer	Sodium methyl oleoyl taurate
Glyceryl hydroxystearate	Potassium cocoyl glycinate	Sodium myristoyl glutamate
Hydrogenated tallowoyl glutamic acid	Potassium cocoyl hydrolyzed collagen	Sodium myristoyl hydrolyzed collagen
Isopropyl hydroxybutyramide dimethicone copolyol	Potassium C9-15 phosphate ester	Sodium myristoyl sarcosinate
Lauramidopropyl betaine	Potassium lauroyl hydrolyzed collagen	Sodium myristyl sulfate
Laureth-1, -2, -3, -4, -7, -12, -16	Potassium lauryl sulfate	Sodium nonoxynol-6 phosphate
Laureth-3 carboxylic acid. L. phosphate	Potassium myristoyl hydrolyzed collagen	Sodium octoxynol-2 ethane sulfonate
Laureth-5 carboxylic acid	Potassium oleoyl hydrolyzed collagen	Sodium octyl sulfate
Laureth-11 carboxylic acid	Potassium palmitate	Sodium oleoyl hydrolyzed collagen
Lauroyl sarcosine	Potassium undecylenoyl hydrolyzed collagen	Sodium stearoyl hydrolyzed collagen
Lauryl dimethylamine cyclocarboxypropylolate	PPG-2-isodeceth-4 -6 -9 -12	Sodium trideceth sulfate
Lauryl hydroxyethyl imidazoline	PPG-6 C12-18 pareth-11	Sodium undecylenoyl hydrolyzed collagen
Linoleamide DEA	Protein hydrolysates	Sodium/TEA-lauroyl hydrolyzed collagen
Magnesium laureth-8 sulfate	Quaternium-80	Sodium/TEA-lauroyl hydrolyzed keratin
Meroxapol 105, 171, 172	Quillaja saponaria extract	Sorbitan isosteareate
MEA-lauryl sulfate	Raffinose laurate. R. myristate. R. oleate	Stearoyl sarcosine
Mixed isopropanolamines myristate	Raffinose palmitate. R. stearate	Sulfated castor oil
Myreth-7	Ricinoleamidopropyl betaine	TEA-cocoyl glutamate
Myristoyl sarcosine	Silicone quaternium-1, -8, -9	TEA-cocoyl hydrolyzed collagen
Myristyl alcohol	Sodium alpha olefin sulfonate	TEA-cocoyl hydrolyzed soy protein
Nonoxynol-7, -9, -13, -15	Sodium cocoamphoacetate	TEA-C12-15 alkyl sulfate
Nonoxynol-10 carboxylic acid	Sodium cocoyl hydrolyzed wheat protein	TEA-hydrogenated tallow glutamate
Octoxynol-10, -12	Sodium cocoyl isethionate	TEA-lauroyl glutamate
Octyldodeceth-10, -16	Sodium C12-13 sulfate	TEA-lauroyl keratin amino acids
Oleoyl sarcusine	Sodium C12-14 pareth-2 sulfate	TEA-lauroyl sarcosinate
Oleth-2 phosphate	Sodium C12-15 pareth-3 sulfonate	TEA-lauryl sulfate
Oleth-5 phosphate	Sodium C12-15 pareth-7 carboxylate	TEA-myristoyl hydrolyzed collagen
Oleyl betaine	Sodium C12-15 pareth-7 sulfonate	Tocophereth-5 -10 -18 -20 -30 -50 -70
Oleyl hydroxyethyl imidazoline	Sodium C12-15 pareth-8 carboxylate	Trideceth-7 carboxylic acid
Palmitamine oxide	Sodium C12-15 pareth-15 sulfonate	Trideceth-9
Palmyrilyl betaine	Sodium C12-18 alkyl sulfate	Trideceth-19-carboxylic acid
PCA ethyl cocoyl arginate	Sodium C13-17 alkane sulfonate	Tridecyl ethoxylate
PEG-7 hydrogenated castor oil	Sodium C14-16 olefin sulfonate	Triethanolamine C10-14 sulfate
PEG-8 caprylic/capric glycerides	Sodium cetacetyl sulfate	Tri lauryl phosphate
PEG-8 laurate	Sodium cetyl oleyl sulfate	Wheat germamidopropyl betaine
PEG-8 stearate	Sodium coco-tallow sulfate	Yucca vera extract
PEG-15 glyceryl stearate	Sodium cocoyl glutamate	Suspending agent
PEG-25 glyceryl isosteareate	Sodium cocoyl hydrolyzed collagen	Acrylates/ceteareth-20 methacrylates copolymer
PEG-27 lanolin	Sodium cocoyl hydrolyzed soy protein	Acrylates/steareth-20 methacrylate copolymer
PEG-30 lanolin	Sodium cocoyl sarcosinate	Algin
PEG-40 castor oil	Sodium dimethiconic copolyol acetyl methyltaurate	Bentonite
PEG-40 glyceryl stearate	Sodium hydrogenated tallow glutamate	C10 polycarbamyl polyglycol ester
PEG-40 jojoba oil. P. lanolin	Sodium isodecyl sulfate	Calcium alginate
PEG-60 glyceryl isosteareate. P. g. stearate	Sodium laureth-5 carboxylate	Carbomer. C. 934
	Sodium laureth-11 carboxylate	Carageenan (Chondrus crispus)
	Sodium laureth-13-carboxylate	Cellulose gum
	Sodium laureth sulfate	Cetyl hydroxyethylcellulose

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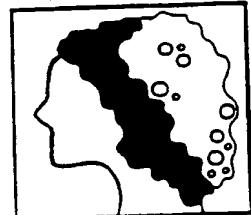
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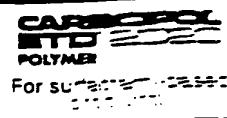


Functions

Dihydrogenated tallow phthalic acid amide	Calcium alginate	MDM hydantoin
Distearyl phthalic acid amide	Calcium carrageenan	Methylcellulose
Guar (<i>Cyanoopsis tetragonoloba</i>) gum	Caprylic alcohol	Montmorillonite
Hectorite	Carbomer	Myristamide DEA. M. MEA
Hydroxypropylcellulose	Carboxymethyl hydroxyethylcellulose	Myristamine oxide
Isobutylene/MA copolymer	Carrageenan (<i>Chondrus crispus</i>)	Myristyl alcohol
Magnesium aluminum silicate	Cellulose. C. gum	Octacosanyl stearate
Methyl cellulose	Cetearyl alcohol. C. behenate	Oleamide. O. DEA. O. MEA
Pentasodium triphosphate	Cetearyl octanoate. C. stearate	Palmitamide MEA
Polyethylene. P. micronized	Cetostearyl stearate	Pectin
Propylene glycol alginate	Cetyl alcohol	PEG-2 laurate
Quaternium-18 bentonite	Cetyl hydroxyethylcellulose	PEG-3 distearate. P. lauramide
Quaternium-18 hectorite	Cetyl myristate. C. palmitate	PEG-3 lauramine oxide
Sodium magnesium silicate	Cocamide	PEG-4 diisostearate. P. oleamide
Sodium polynaphthalenesulfonate	Cocamide MEA. C. MIPA	PEG-5M
Stearalkonium bentonite. S. hectorite	Cocamidopropylamine oxide	PEG-6 beeswax
Steareth-10 allyl ether/acrylates copolymer	Coco-betaine	PEG-7 hydrogenated castor oil
Tragacanth (<i>Astragalus gummifer</i>) gum	Coco-rapeseedate	PEG-8
Tribelomim	Cocooleamidopropyl betaine	PEG-8 dioleate. P. distearate
Trihydroxystearam	Cocoyl amido hydroxy sulfo betaine	PEG-8 stearate
Trumethamine magnesium aluminum silicate	Cocoyl monoethanolamide ethoxylate	PEG-9M
Xanthan gum	Colloidal silica sols	PEG-12 beeswax
Sweetener	DEA-hydrolyzed lecithin	PEG-18 glyceryl oleate/cocoate
Calcium saccharin	DEA-linoleate	PEG-23M
Fructose	DEA-olet-3 phosphate	PEG-28 glyceryl tallowate
Glycinebetinic acid	DEA olet-10 phosphate	PEG-40 jojoba oil
Glycyrrhetic acid	Decyl alcohol	PEG-45M
Glycyrrhizin. ammoniated	Dextran	PEG-50 tallow amide
Hydrolyzed corn starch	Dilaureth-10 phosphate	PEG-55 propylene glycol oleate
Lactose	Dioleth-8 phosphate	PEG-75 stearate
Maltitol	DMHF	PEG-90M
Mannitol	Ethyoxylated fatty alcohol	PEG-100 stearate
Saccharin	Gellan gum	PEG-120 methyl glucose dioleate
Sodium saccharin	Glycerol behenate. G. stearate	PEG-150 distearate
Sorbitol	Glycerol polymethacrylate	PEG-150 pentaerythrityl tetraesteareate
Sucrose	Guar (<i>Cyanoopsis tetragonoloba</i>) gum	PEG-160M
Tanning accelerator	Guar hydroxypropyltrimonium chloride	PEG-200 glyceryl stearate
Acetyl tyrosine	Hectorite	PEG-200 glyceryl tallowate
Carrot (<i>Daucus carota</i>) extract	Hexyl alcohol	Pentaerythritol tetrahexenate
Copper acetyl tyrosinate methylsilanol	Hydrated silica	Pentaerythritol tetraurate
Dihydroxyacetone	Hydrogenated rapeseed oil	Poloamer 105. 124. 185. 237. 238. 338. 407
Disodium inulin tyrosinate	Hydrogenated starch hydrolysate	Polyacrylic acid
Eclipta alba extract in white emulsion	Hydrogenated talloweth-60 myristyl glycol	Polysorbate 20
Glucose tyrosinate	Hydrolyzed oat flour	Potassium alginate. P. chloride
Thickener	Hydrolyzed transgenic collagen	Potassium oleate. P. stearate
Acrylates-VA crosspolymer	Hydroxyethylcellulose	PPG-5-ceteth-10 phosphate
Acrylates/C10-C30 alkyl acrylate crosspolymer	Hydroxypropyl chitosan	Propylene glycol stearate
Acrylates/ceteth-20 itaconate copolymer	Hydroxypropyl methylcellulose	PVM/MA decadiene crosspolymer
Acrylates/ceteth-20 methacrylates copolymer	Hydroxypropylcellulose	PVP
Acrylates/steareth-20 itaconate copolymer	Isoeeth-10	Quaternium-18 bentonite
Acrylates/steareth-20 methacrylate copolymer	Isoeethamide DEA	Quaternium-18 hectorite
Acrylates/steareth-50 acrylate copolymer	Isoeethamidopropylamine oxide	Rapeseed oil. ethoxylated high erucic acid
Acrylates/vinyl isodecanoate crosspolymer	Isoeethamphopropionate	Ricinoleamide MEA
Acrylic acid/acrylonitrile copolymer	Javate wax	Sesame DEA
Algin	Kara. a (<i>Sterculia urens</i>) gum	Sodium acrylates/vinyl isodecanoate crosspolymer
Aluminum/magnesium hydroxide stearate	Lecithide. L. MEA. L. MIPA	Sodium carborer. S. carrageenan
Ammonium acrylates/acrylonitrile copolymer	Lecithidopropyl betaine	Sodium ceteth-13-carboxylate
Ammonium alginate	Lecith-10	Sodium chloride
Arachidyl alcohol	Lecith-linoleic DEA	Sodium magnesium silicate. S. stearate
Behenic acid	Lecith-linoleoyl diethanolamide	Sorbitan sesquioctearate. S. tristearate
Behenyl alcohol. B. behenate	Lecith-l-myristoyl diethanolamide	Soyamide DEA
Bentonite	Lecith-alcohol. L. betaine	Soyamidopropyl betaine
C10 polyacrylamyl polyglycol ester	Lecith-deamide. L. MEA	Starch polyacrylonitrile copolymer-potassium salt
C12-15 alcohols	Lecith-acid	Starch polyacrylonitrile copolymer-sodium salt
C12-16 alcohols	Lecith-bean (<i>Cicer arietinum</i>) gum	Stearalkonium bentonite. S. hectorite
C18-36 acid	Lecith-magnesium aluminum silicate	Stearamide

3 BETTER IDEAS.

1 BETTER SOURCE.



Functions

Steareth-10 allyl ether/acrylates copolymer	Gold of pleasure oil	Ceresin
Stearic acid	Grape (<i>Vitis vinifera</i>) seed oil	Cetyl dimethicone, C. isoctanoate
Stearyl alcohol	Hazel (<i>Corylus avellana</i>) nut oil	Dialkylidemethylpolysiloxane
Synthetic beeswax	Hybrid sunflower (<i>Helianthus annuus</i>) oil	Dimethiconol hydroxystearate
Tallowamide MEA	Hydrogenated coconut oil	Dimethiconol stearate
TEA-acrylates/acrylonitrile copolymer	Hydrogenated cottonseed oil	Hydrogenated castor oil
Tragacanth (<i>Astragalus gummifer</i>) gum	Hydrogenated vegetable oil	Hydrogenated cottonseed oil
Tribehenin	Jojoba (<i>Buxus chinensis</i>) oil	Hydrogenated jojoba oil, H. j. wax
Trihydroxystearin	Kukui (<i>Aleurites moluccana</i>) nut oil	Hydrogenated palm kernel oil
Tromethamine magnesium aluminum silicate	Macadamia ternifolia nut oil	Hydrogenated rapeseed oil
Wheat germamide DEA	Meadowfoam (<i>Limnanthes alba</i>) seed oil	Hydrogenated rice bran wax
Wheat germamidopropyl betaine	Mexican poppy oil	Hydrogenated vegetable oil
Xanthan gum	Palm (<i>Elaeis guineensis</i>) kernel oil	Isooctadecyl isononanoate
Thixotrope	Partially hydrogenated soybean oil	Japan (<i>Rhus succedanea</i>) wax
Benonite	Peach (<i>Prunus persica</i>) kernel oil	Jojoba esters
Hectorite	Peanut (<i>Arachis hypogaea</i>) oil	Montan (Montan cera) wax
Sodium magnesium silicate	Pecan (<i>Carya illinoensis</i>) oil	Ouncury wax
Stearalkonium bentonite	Pumpkin (<i>Cucurbita pepo</i>) seed oil	Ozokerite
Toner	Quinoa (<i>Chenopodium quinoa</i>) oil	Polyglyceryl-3 beeswax
Althea officinalis extract	Rapeseed (<i>Brassica campestris</i>) oil	Spermaceti
Clover (<i>Trifolium pratense</i>) extract	Rice (<i>Oryza sativa</i>) bran oil	Stearoxydimethyisilane
Dog rose (<i>Rosa canina</i>) hips extract	Safflower (<i>Carthamus tinctorius</i>) oil	Synthetic candelilla wax
Ginseng (<i>Panax ginseng</i>) extract	Seabuckthorn oil	Synthetic carnauba
Horsetail extract	Sesame (<i>Sesamum indicum</i>) oil	Wetting agent
Lemon bioflauonoids extract	Sisymbrium irio oil	Benzalkonium chloride
Meadowsweet (<i>Spiraea ulmaria</i>) extract	Soybean (<i>Glycine soja</i>) oil	Benzethonium chloride
Nettle (<i>Urtica dioica</i>) extract	Sunflower (<i>Helianthus annuus</i>) seed oil	Cetalkonium chloride
Rose (<i>Rosa multiflora</i>) extract	Walnut (<i>Juglans regia</i>) oil	Ceteareth-20
Rosemary (<i>Rosmaninus officinalis</i>) extract	Wheat (<i>Triticum vulgare</i>) germ oil	Ceteth-20
UVA absorber	Wild borage oil	Cetyl pyridinium chloride
Benzophenone-1, -2, -3, -4, -6, -8, -9, -11, -12	Vitamin	Cocoamphodipropionic acid
Buryl methoxydibenzoylmethane	Aesculus chinensis extract	Decaglycerol monodioleate
Corallina officinalis	Ascorbic acid	Deceth-9
Isopropyl dibenzoylmethane	Ascorbic acid polypeptide	Dihydroabetyl methacrylate
Menthyl anthranilate	Ascorbyl palmitate	Dimethicone copolyol methyl ether
2',4,4'-Tetrahydroxybenzophenone	Biotin	Dimethicone copolyol phthalate
Titanium dioxide	Calcium pantothenate	Diocetyl sodium sulfosuccinate
Zinc oxide	Cholecalciferol	Ethyl hydroxymethyl oleyl oxazoline
UVB absorber	Cyanocobalamin	Hydroxylated milk glycerides
Argania spinosa oil	Eclipta alba extract	Iso Laureth-6
Benzophenone-1, -2, -3 → -6 -9 -11	Emblica officinalis extract	Laolin acid
Corallina officinalis	Equisetum arvense extract	Lauryl pyrrolidone
DEA-methoxycinnamate	Ergocalciferol	Lecithin
Dromeinazole	Esculin	Methyl hydrogenated rosinate
Ethyl dihydroxypropyl PABA	Ethyl linolate	Methyl rosinate
Eiocrylene	Folic acid	Nonyl nonoxynol-5
Homosalate	Laminaria japonica extract	Octoxynol-8, 70
Isoamyl p-methoxycinnamate	Marsilea minuta extract	Oleth-15
Isopropyl methoxycinnamate	Melaleuca bracteata extract	Oleth-20 phosphate
Isopropylbenzyl salicylate	Menadione	PEG-9 castor oil
4-Methylbenzylidene camphor	Nasturtium sinensis extract	PEG-15 castor oil
Octocrylene	Nelumbium speciosum extract	PEG-20 glyceryl stearate
Octrizole	Niacin	PEG-20 sorbitan triisostearate
Octyl dimethyl PABA	Niacinamide, N. ascorbate	PEG-45 palm kernel glycerides
Octyl methoxycinnamate	Nicotinamide	PEG-60 almond glycerides, P. corn glycerides
Octyl salicylate	Nicotinic acid	PEG-60 Shea butter glycerides
Titanium dioxide	Ocimum basilicum extract	PEG-70 mango glycerides
TriPABA panthenol	Panthenyl triacetate	PEG-75 shores butter glycerides
Zinc oxide	Pantothenic acid	PEG-80 sorbitan laurate
Vegetable oil	Phytanadione	Poloxamer 123, 181, 182, 184, 235, 334
Apricot (<i>Prunus armeniaca</i>) kernel oil	Pyridoxine HCl	Polyether trisiloxane
Avocado (<i>Persea graissima</i>) oil	Retinol	Polyglyceryl-3 oleate
Baobab oil	Retinyl acetate, R. palmitate	Polyglyceryl-6 dioleate
Caulimodula officinalis oil	Retinyl palmitate polypeptide	Polyglyceryl-10 tetraoleate
Chaulmoogra (<i>Taraktogenos kurzii</i>) oil	Retinyl propionate	Polysorbate 60, 80
Coconut (<i>Cocos nucifera</i>) oil	Riboflavin tetraacetate	PPG-2-isodceth-4, -6, -9, -12
Corn (<i>Zea mays</i>) oil	Sodium ascorbate	PPG-10 lanolin alcohol ether
Cottonseed (<i>Gossypium</i>) oil	Thiamine HCl	Propylene glycol
	Tocopherol	Sodium butoxyethoxy acetate
	Tocopheryl acetate, T. succinate	Sodium lauroylamphohydroxypropylsulfonate
	Wax	Sodium decyl diphenyl ether sulfonate
	Bayberry (<i>Myrica cerifera</i>) wax	Sodium lauryl sulfate
	Behenoxy dimethicone	Sulfated castor oil
	C16-18 alkyl methicone	Triisooctyl citrate
	Candelilla (<i>Euphorbia cerifera</i>) wax	Triisostearin PEG-6 esters
	Carnauba (<i>Copernicia cerifera</i>) wax	Yucca vera extract

Claims:

1. A cosmetic composition, comprising:

a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component randomly bonded to at least one poly(acrylic acid) component said polymer network capable of aggregation in response to a change in temperature; and

5 a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous-based medium.

2. A cosmetic composition for topical application, comprising:

10 a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and

15 a cosmetically active agent selected to treat imperfections or disorders of the skin, said carrier and said agent disposed within an aqueous-based medium.

20 3. The cosmetic composition of claim 1, wherein the cosmetic composition is a shampoo and the cosmetically active agent comprises a cleansing surfactant.

4. The cosmetic composition of claim 1, wherein the cosmetic composition is a moisturizer and the cosmetically active agent comprises a moisturizer.

25 5. The cosmetic composition of claim 1, wherein the cosmetic composition is a sunscreen and the cosmetically active agent comprises a uv-absorbing agent.

6. The cosmetic composition of claim 1, wherein the cosmetic composition is an acne cream and the cosmetically active agent comprises an antiacne agent.

5 7. The cosmetic composition of claim 1, wherein the cosmetic composition is a hair straightener and the cosmetic agent comprises a base for increasing the pH.

10 8. The cosmetic composition of claim 1, wherein the cosmetic composition is a sunless tanning lotion and the cosmetically active agent comprises skin tinting agent.

15 9. The cosmetic composition of claim 1, wherein the cosmetic composition is an antiperspirant and the cosmetically active agent comprises aluminum chlorhydrate.

10. The cosmetic composition of claim 1, wherein the cosmetic composition is a shaving cream and the cosmetically active agent comprises an emollient and a foaming surfactant.

20

11. The cosmetic composition of claim 1, wherein the cosmetic composition is a face cosmetic and the cosmetically active agent comprises a pigment.

25 12. The cosmetic composition of claim 1 or 2, wherein the cosmetic agent comprises a hydrophobic material, wherein the cosmetically acceptable carrier stabilizes the hydrophobic material in the aqueous medium.

13. The cosmetic composition of claim 2, wherein said cosmetic agent selected to treat imperfections or disorders of the skin is selected from the group consisting of acidulents, antiacne agents, anti-aging agents, anti-inflammatories, anti-irritants, antioxidants, depilatories, detergents, disinfectants, emollients, exfoliants, 5 humectants, lubricants, moisturizers, skin conditioners, skin protectants, skin lightening agents, skin soothing agents sunscreening agents and tanning accelerators and mixtures thereof.

14. The composition of claim 4, wherein said composition further 10 comprises a cosmetic agent selected from the group consisting of humectants and emollients.

15. The composition of claim 1 or 2, further comprising one or more additives selected from the group consisting of preservatives, abrasives, acidulents, 15 antiacne agents, anti-aging agents, antibacterials, anticaking, anticaries agents, anticellulites, antidandruff, antifungal, anti-inflammatories, anti-irritants, antimicrobials, antioxidants, astringents, antiperspirants, antiseptics, antistatic agents, astringents, binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents, conditioners, deodorants, dipilatories, detergents, dispersants, emollients, emulsifiers, 20 enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glosses, hair conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers, powders, propellant, protein, refatting agents, sequestrant, silicones, skin calming 25 agents, skin cleansers, skin conditioners, skin healing, skin lightening agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or fragrances

16. The composition of claim 1, wherein the cosmetic composition takes a form selected from the group consisting of lotions, creams, sticks, roll-on formulations, mousses, sprays, aerosols, pad-applied formulations and masks.

5 17. The composition of claim 1, wherein the viscosification occurs at a temperature in the range of about 27 to 40°C.

18. The composition of claim 1, wherein the viscosification occurs at a temperature in the range of about 30 to 37°C.

10

19. The composition of claim 1, wherein said composition is formulated as a product selected from the group consisting of baby products, baby shampoos, lotions, powders and creams; bath preparations, bath oils, tablets and salts, bubble baths, bath fragrances bath capsules; eye makeup preparations, eyebrow pencil,

15 eyeliner, eye shadow, eye lotion, eye makeup remover, mascara; fragrance preparations, colognes, toilet waters, powders and sachets; noncoloring hair preparations, hair conditioner, hair spray, hair straighteners, permanent waves, rinses, shampoos, tonics, dressings and other grooming aids; color cosmetics; hair coloring preparations, hair dye, hair tints, hair color sprays, hair lighteners and hair bleaches;

20 makeup preparations, face powders, foundations, leg and body paints, lipstick makeup bases, rouges and makeup fixatives; manicuring preparations, basecoats, undercoats, cuticle softeners, nail creams, nail extenders, nail polish and enamel, and remover; oral hygiene products, dentrifices, mouthwashes; personal cleanliness, bath soaps, detergents, deodorants, douches and feminine hygiene product; shaving preparations,

25 aftershave lotion, beard softeners, men's talcum, shaving cream, shaving soap, preshave lotions; skin care preparations, skin cleansing preparations, skin antiseptics, depilatories, face and neck cleansers, body and hand cleansers, foot powders; moisturizers, night preparations, paste masks, skin fresheners; and suntan preparations, suntan creams, gels and lotions, and indoor tanning preparations.

20. The cosmetic composition of claim 1 or 2, wherein the poloxamer component is present in an amount in the range of about 0.01 to 20 wt% and the poly(acrylic acid component) is present in the amount of about 0.01 to 20 wt%.

5 21. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamers.

10 22. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamer components randomly bonded to a poly(acrylic acid) backbone.

23. The cosmetic composition of claim 1, wherein the reversibly viscosifying polymer composition comprises a plurality of poly(acrylic acid) components randomly bonded to a poloxamer component.

15 24. The cosmetic composition of claim 1, wherein the aqueous-based medium is selected from the group consisting of water, salt solutions and water with water-miscible organic compound(s).

20 25. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature and increase viscosity of the reversible viscosifying polymer network.

25 26. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature and decrease viscosity of the reversible viscosifying polymer network.

27. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature without affecting viscosity of the reversible viscosifying polymer network..
- 5 28. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature and increase viscosity of the reversible viscosifying polymer network.
- 10 29. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature and decrease viscosity of the reversible viscosifying polymer network.
- 15 30. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature without affecting viscosity of the reversible viscosifying polymer network.
- 20 31. The cosmetic composition of claim 1, further comprising an additive selected to increase viscosity without affecting transition temperature of the reversible viscosifying polymer network.
- 25 32. The cosmetic composition of claim 1, further comprising an additive selected to decrease viscosity without affecting transition temperature of the reversible viscosifying polymer network.
33. The cosmetic composition of claim 1 or 2, characterized in that the gel remains translucent to light before and after response to the environmental stimulus.

34. The cosmetic composition of claim 1, wherein the poly(acrylic acid) is branched.

5 35. Method of making an cosmetic composition, comprising:
dissolving a poloxamer capable of aggregation in response to a change in temperature in acrylic acid monomer;

initiating polymerization of the monomer to form a poly(acrylic acid) randomly bonded to the poloxamer, so as to form a reversibly viscosifying polymer composition;

10 mixing the reversibly gelling polymer compositions with a cosmetic agent which imparts a desired cosmetic effect to the composition.

36. The method of claim 36, wherein a polymerization initiator is selected to provide the polymer network having a selected temperature of viscosification.

15

37. The method of claim 36, wherein one or more poloxamers are added.

38. The cosmetic composition of claim 1, wherein the reversibly viscosifying polymer network is present in an amount in the range of 0.01% - 10%.

20

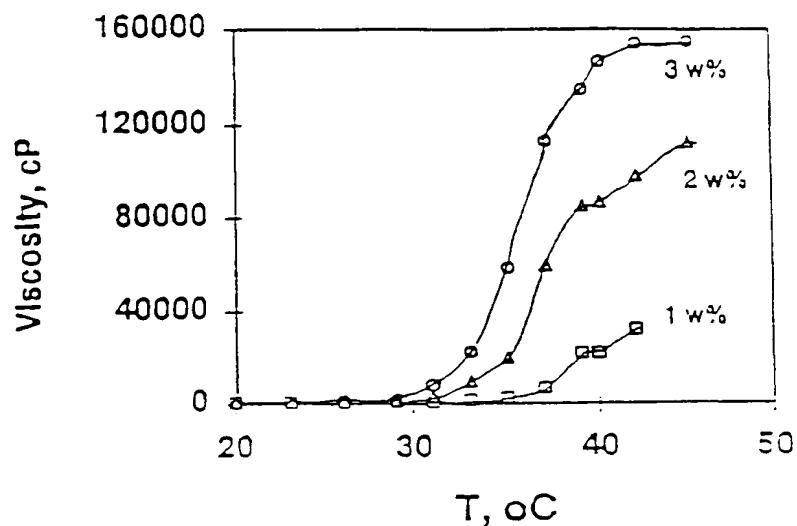


Figure 1.

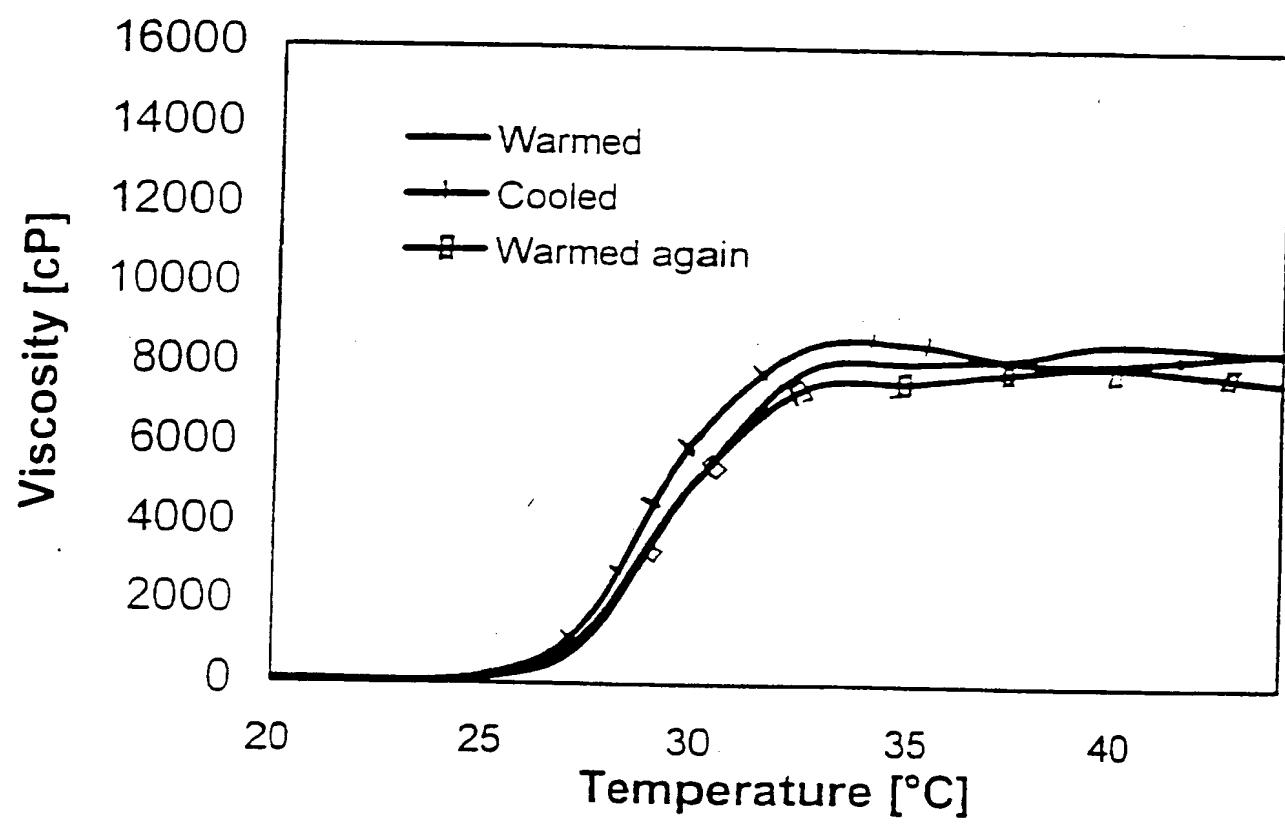


Figure 2

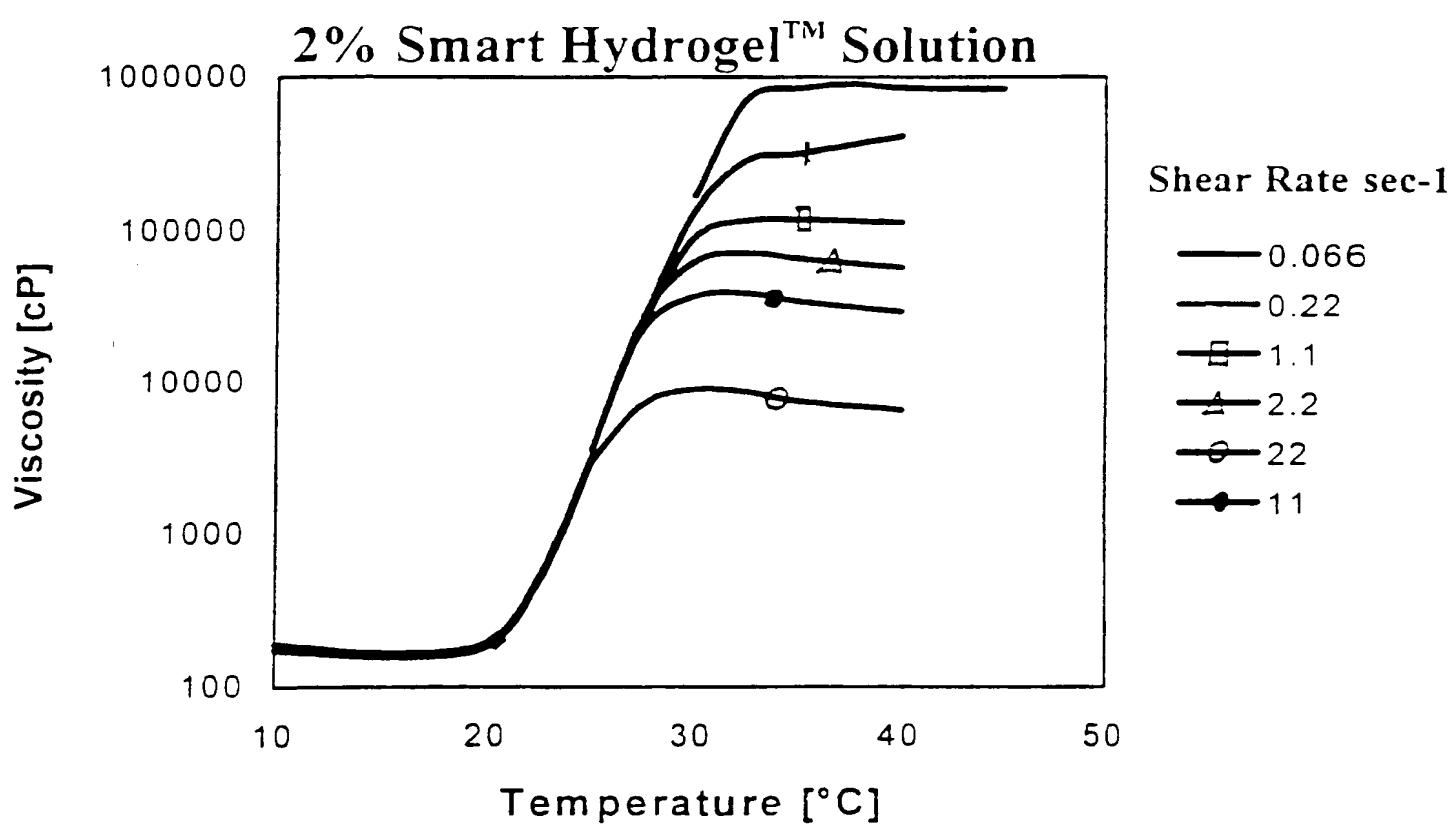


Figure 3

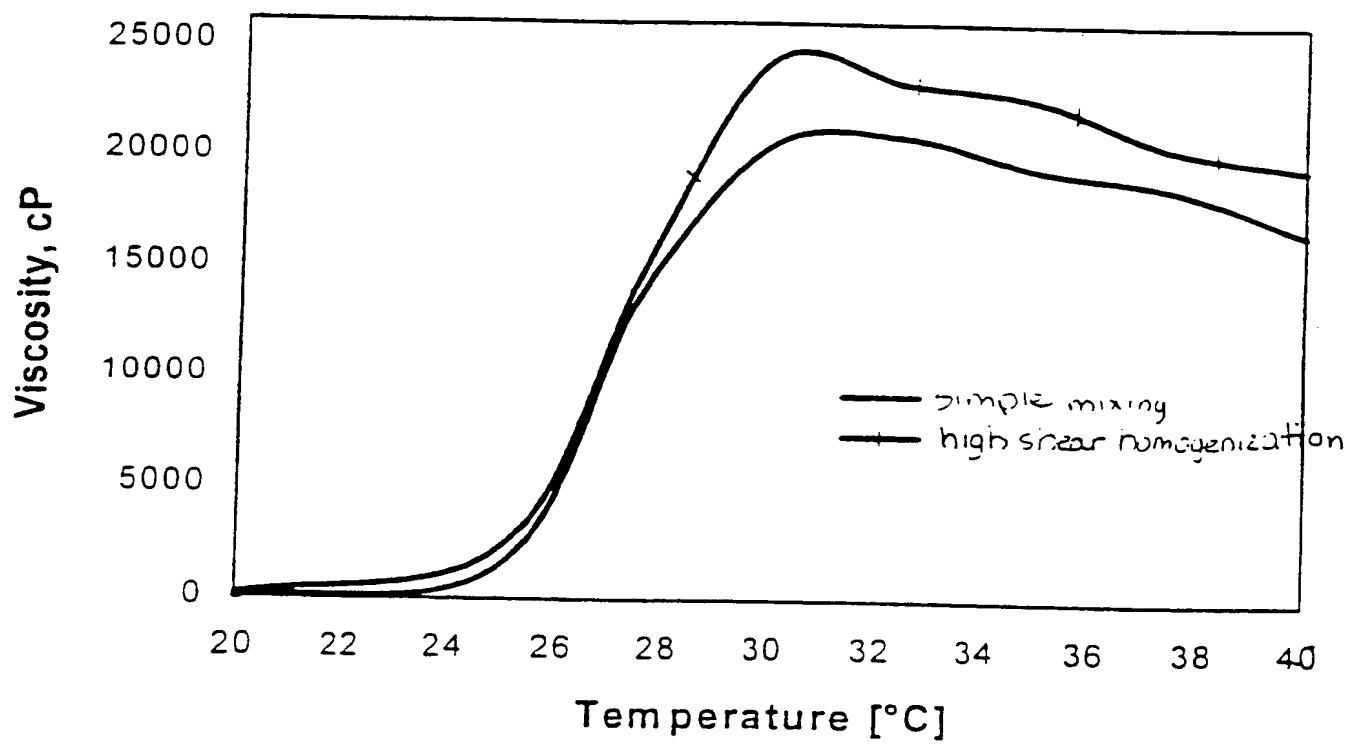


Figure 4

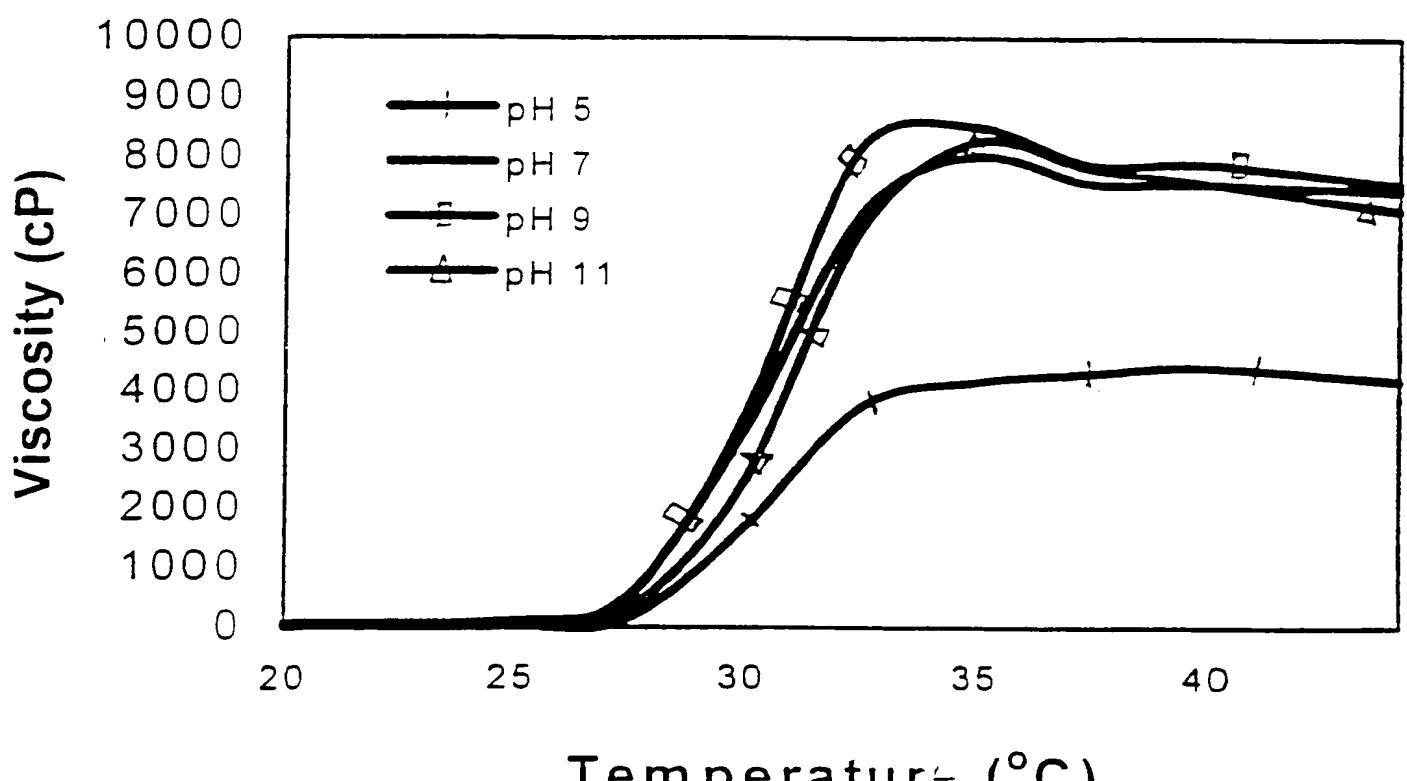


Figure 5

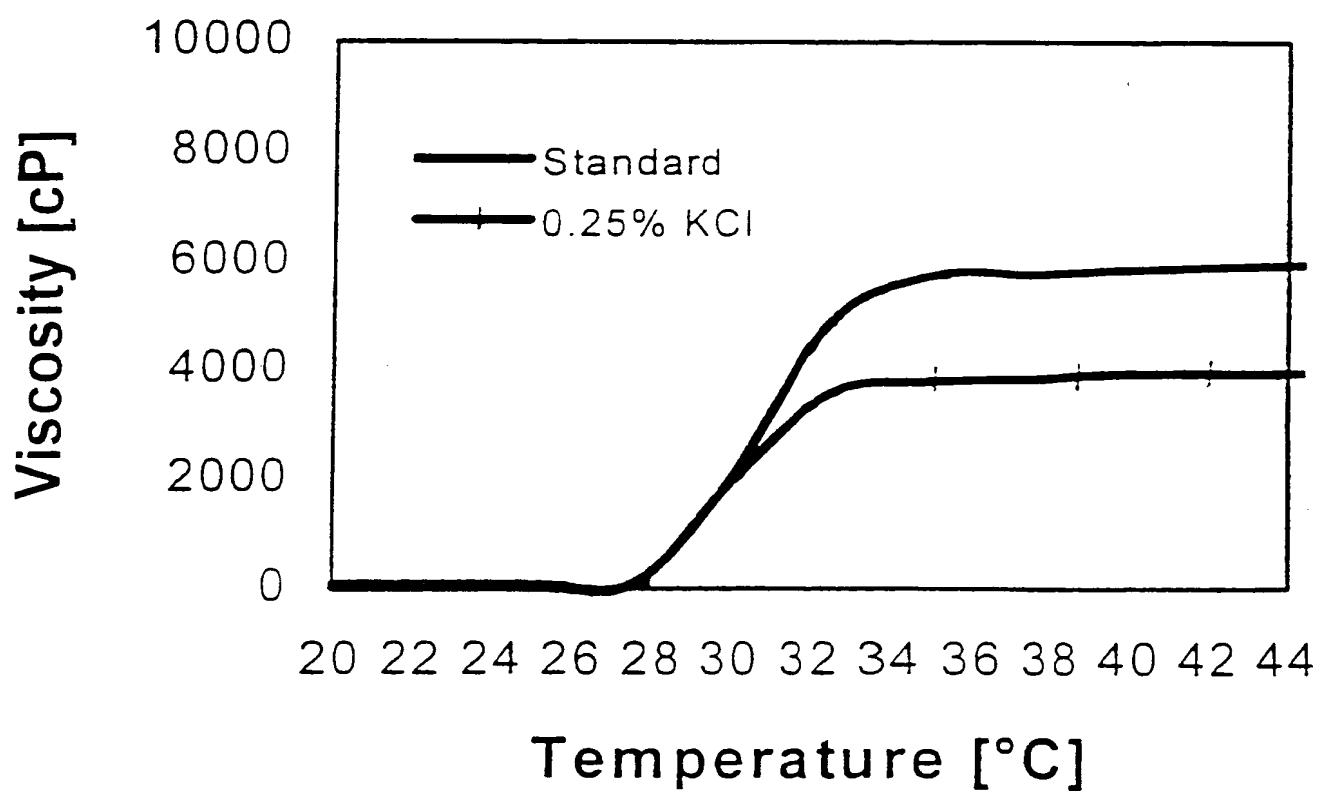


Figure 6

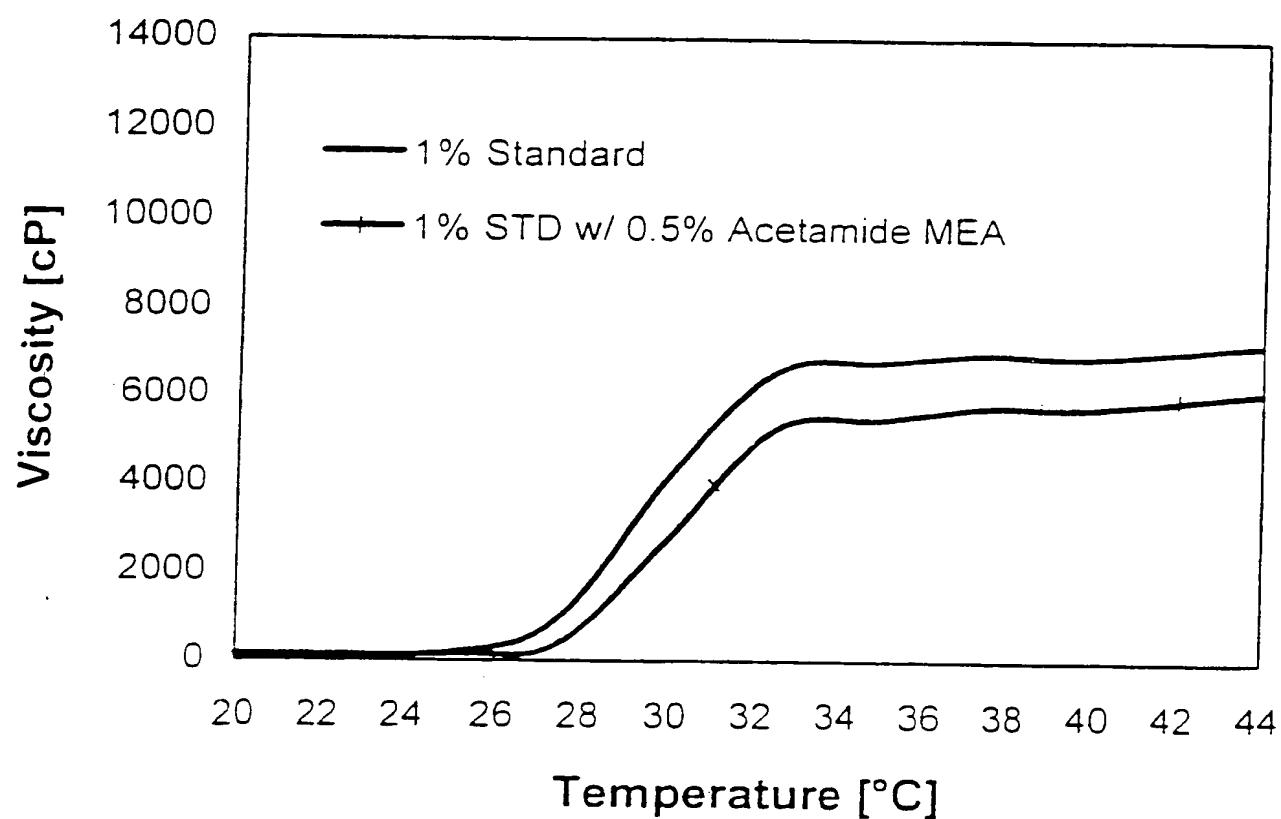


Figure 7

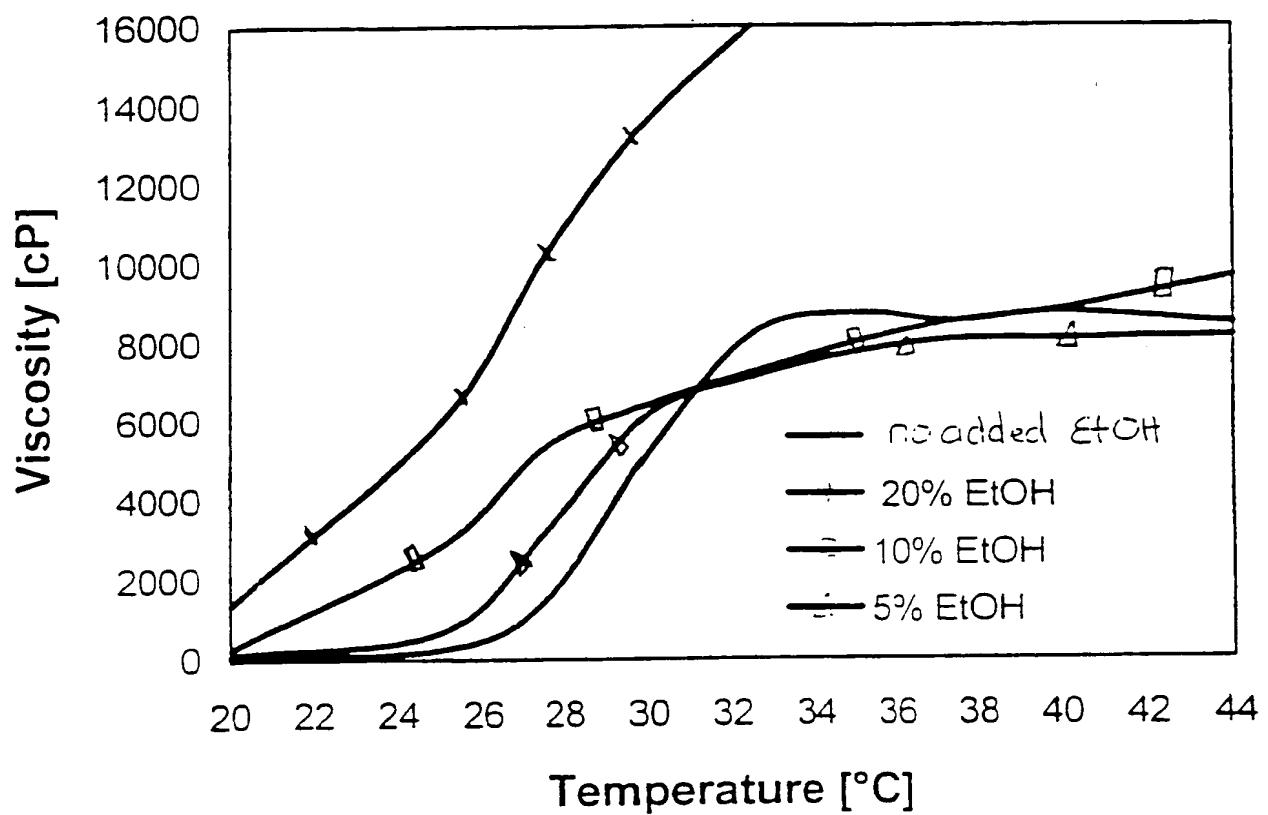


Figure 8

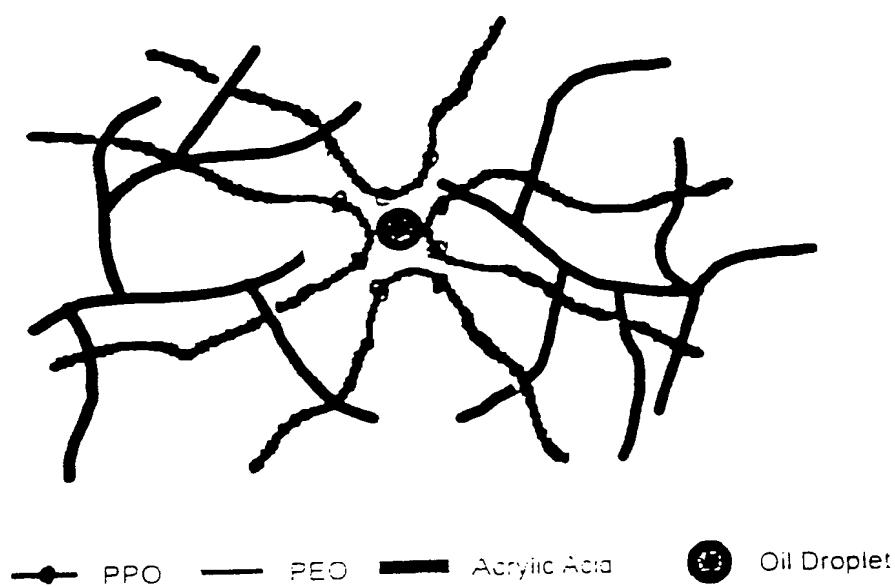
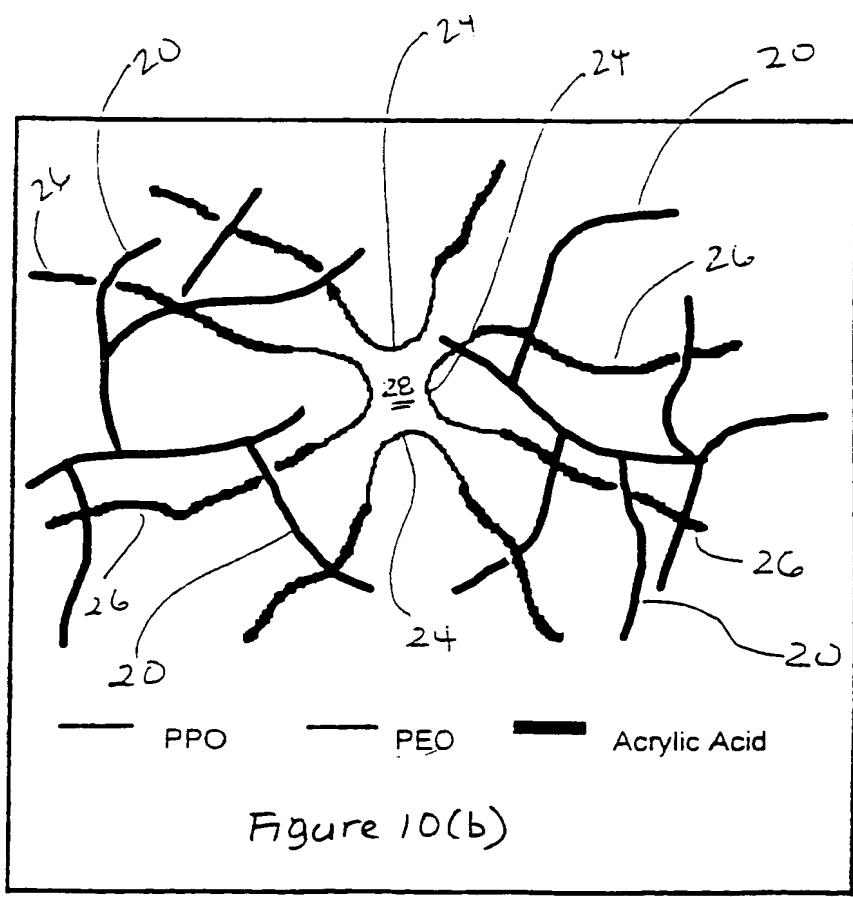
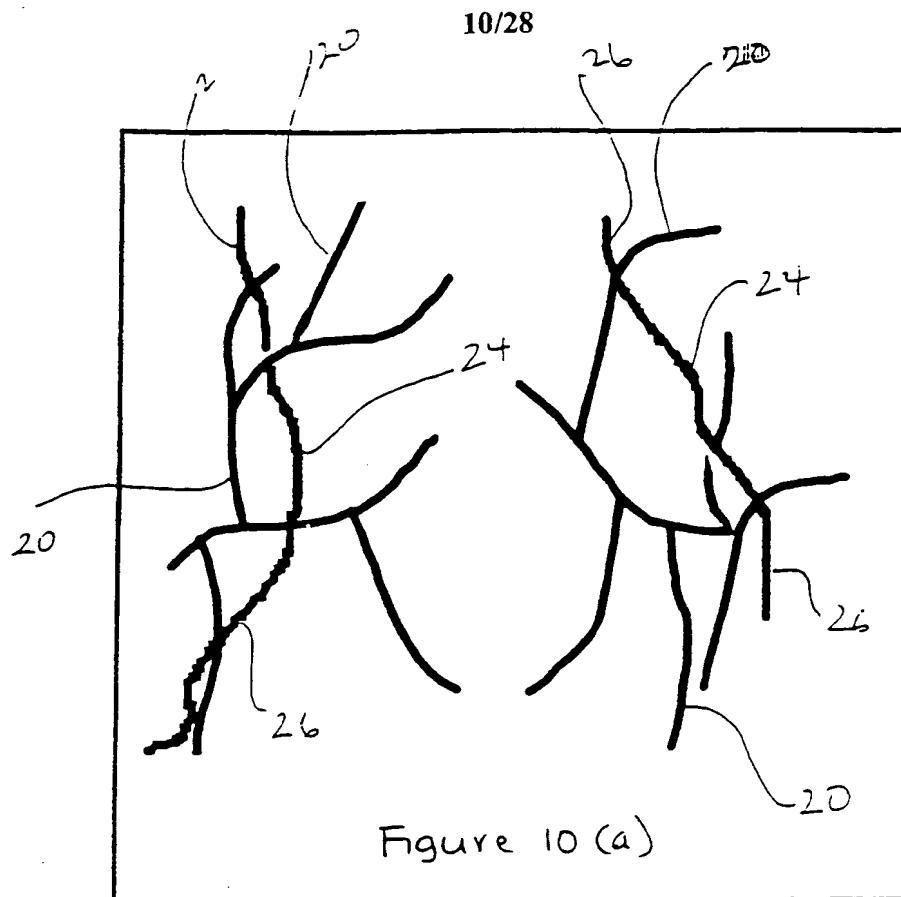


Figure 9



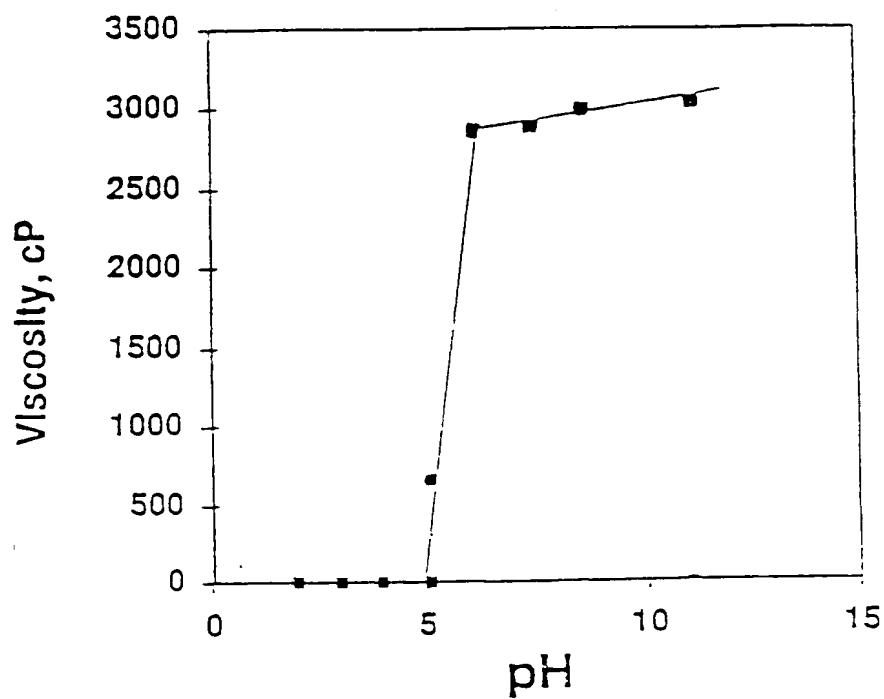


Figure 11

12/28

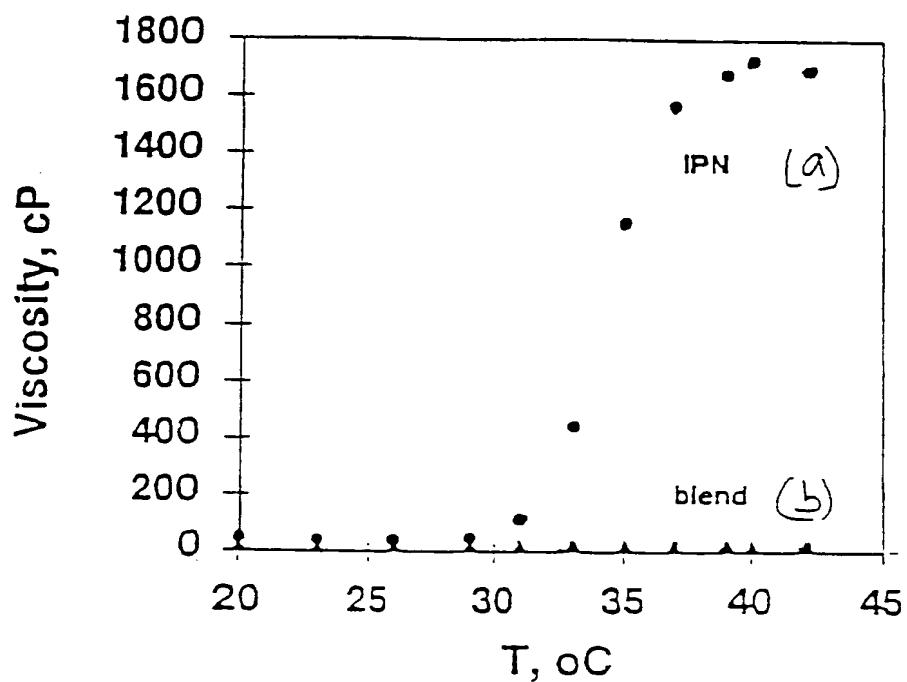


Figure 12

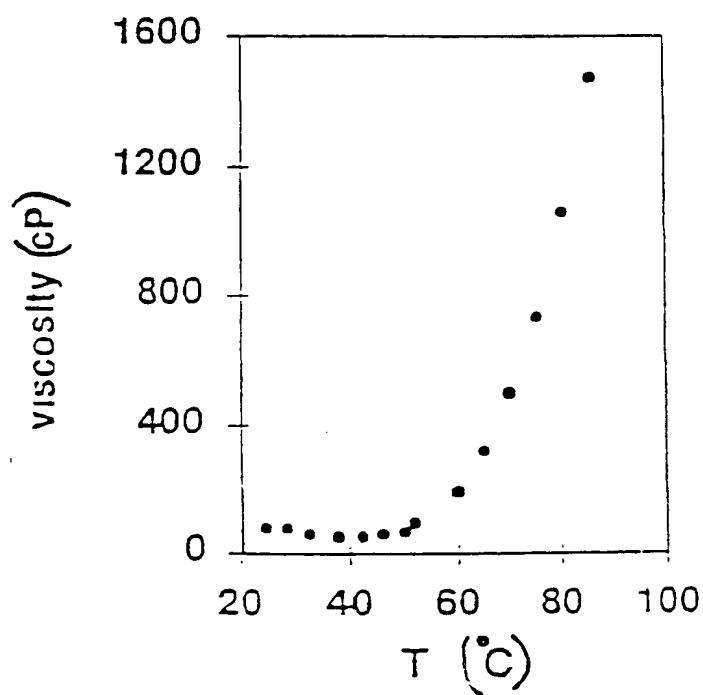


Figure 13

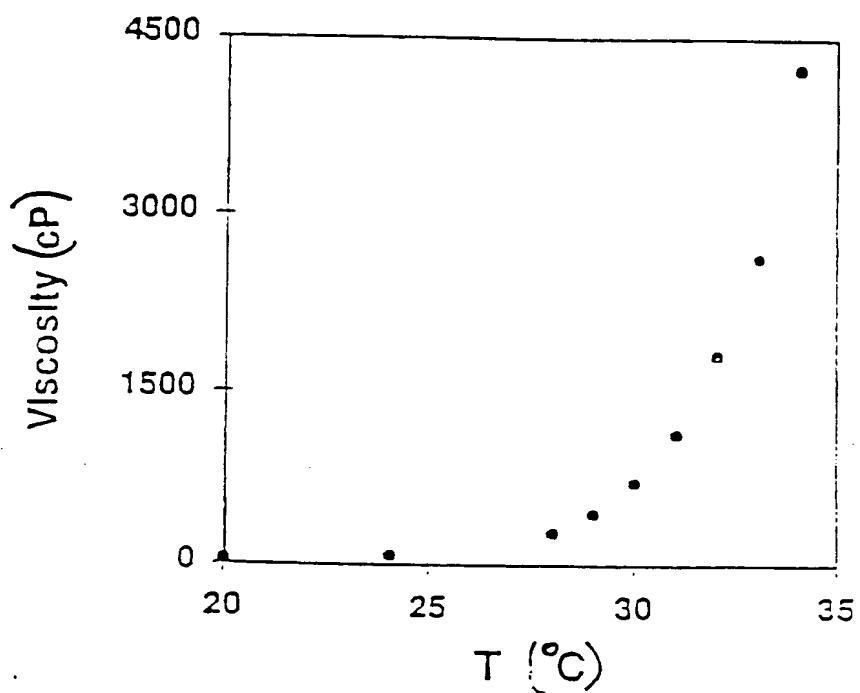


Figure 14

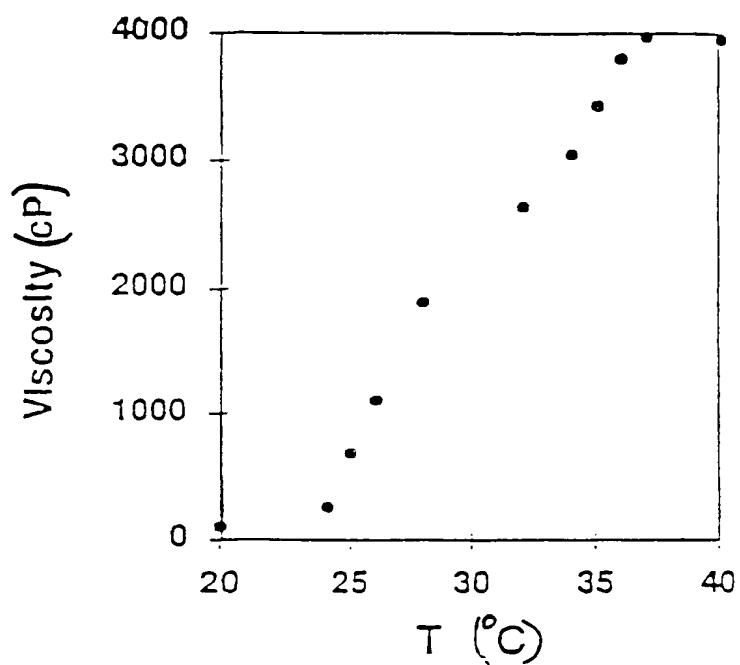


Figure 15

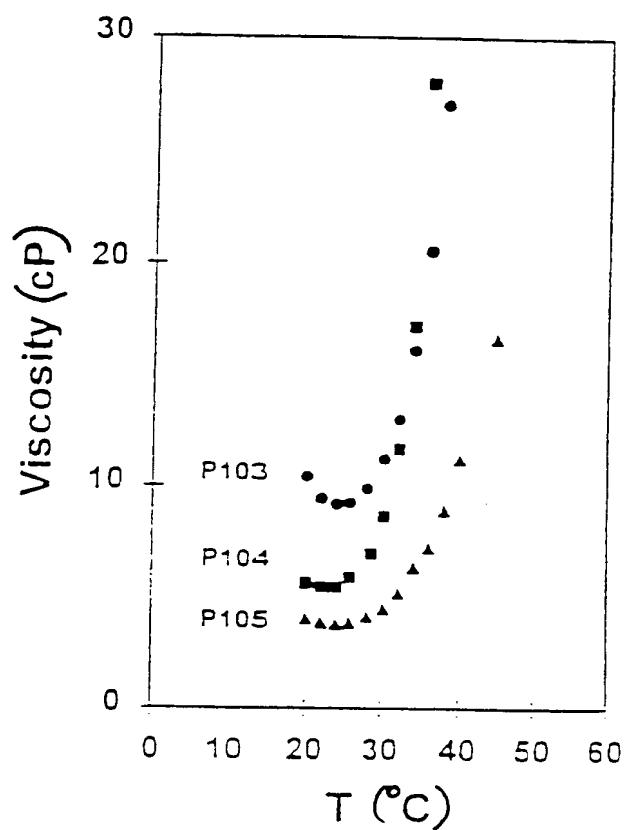


Figure 16

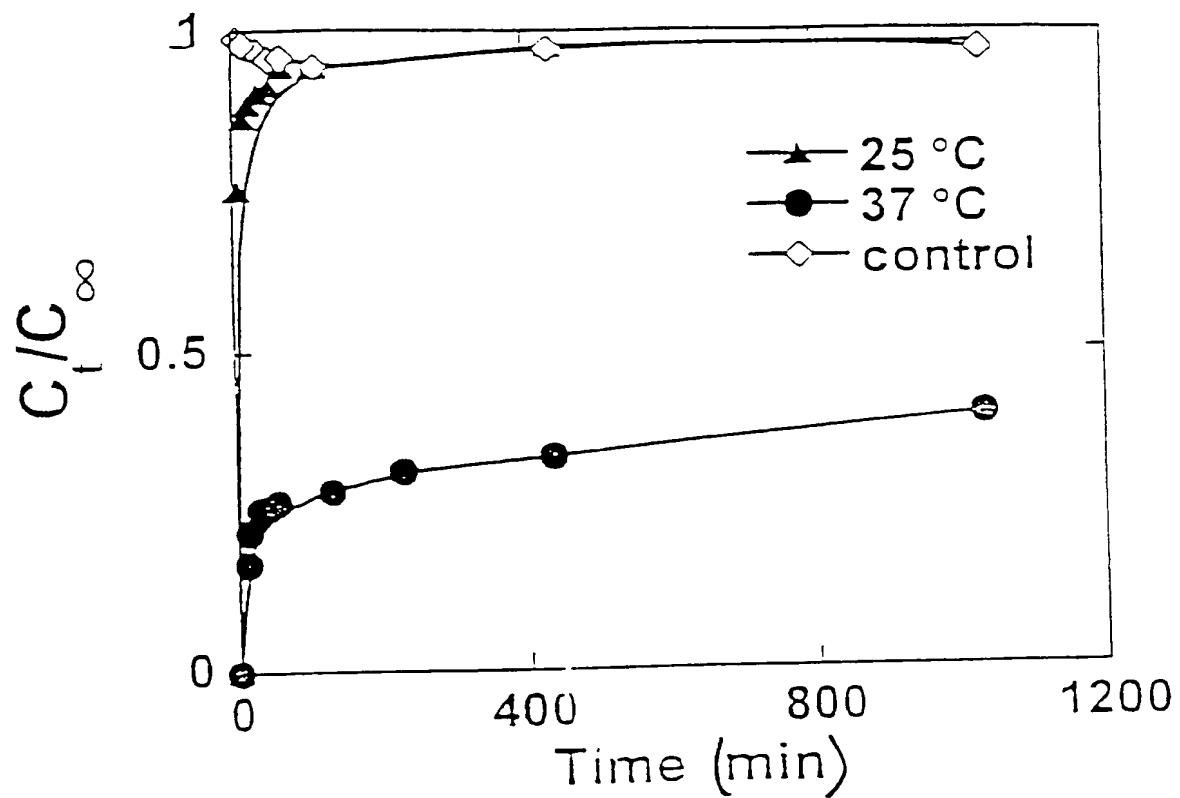


Figure 17

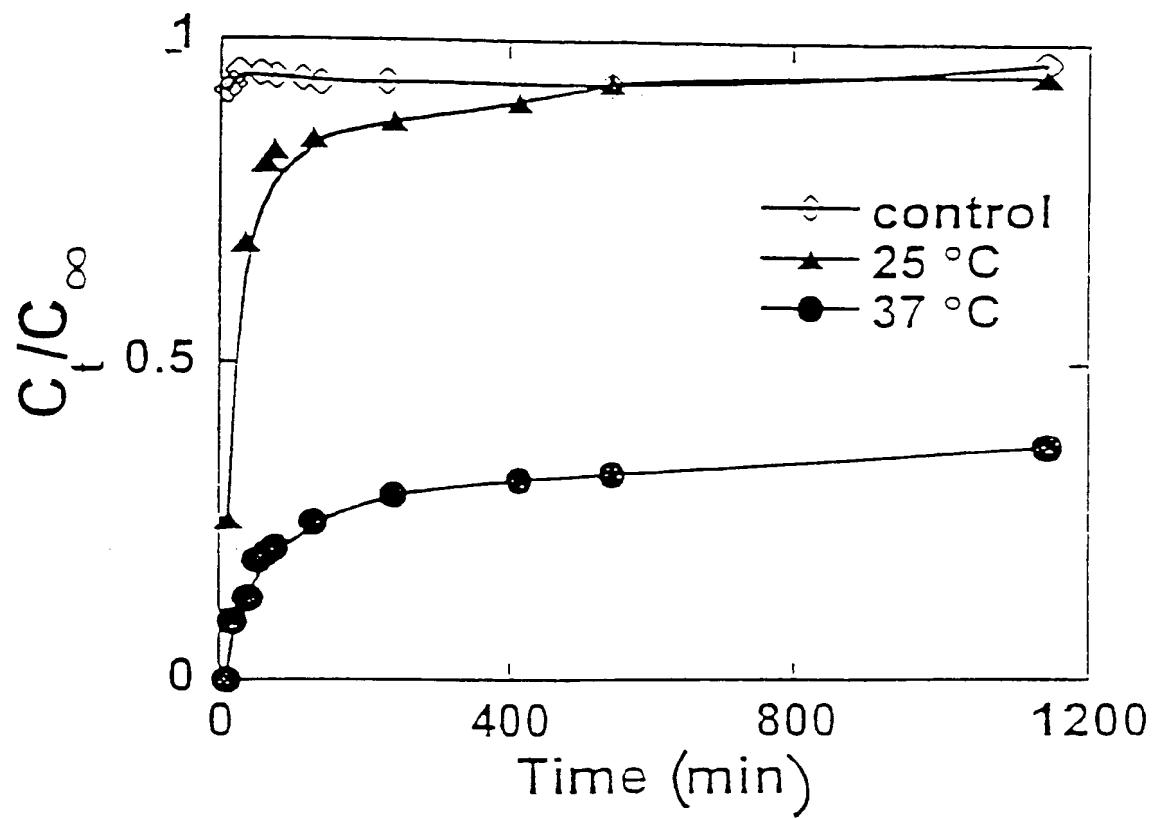


Figure 18

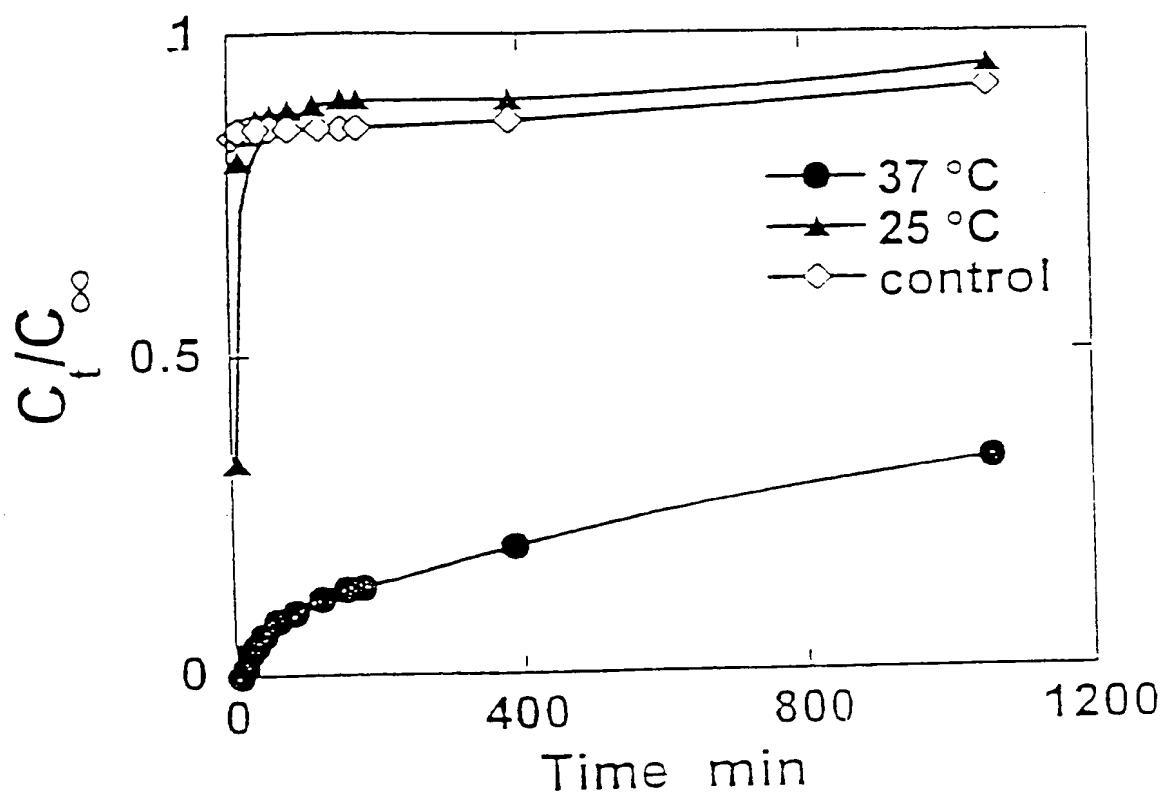


Figure 19

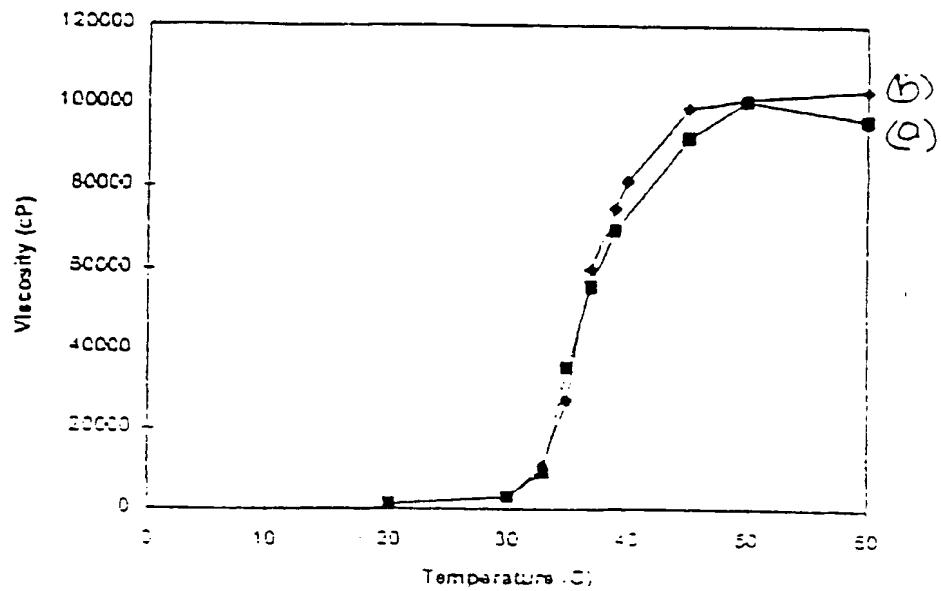


Figure 20

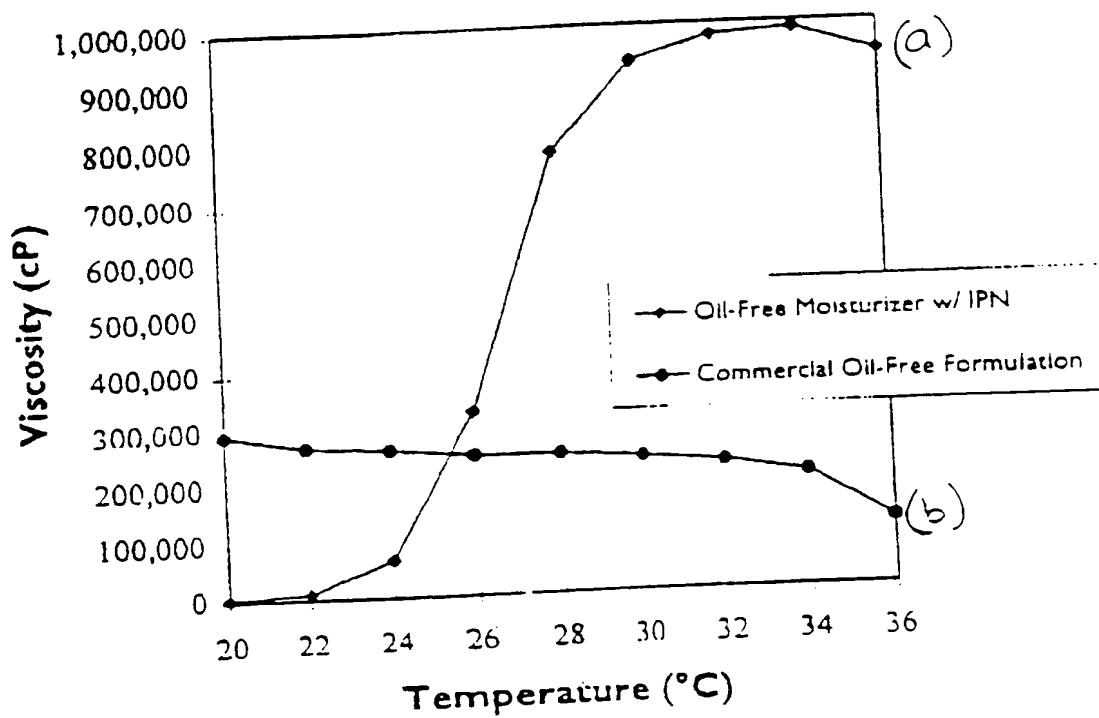


Figure 21

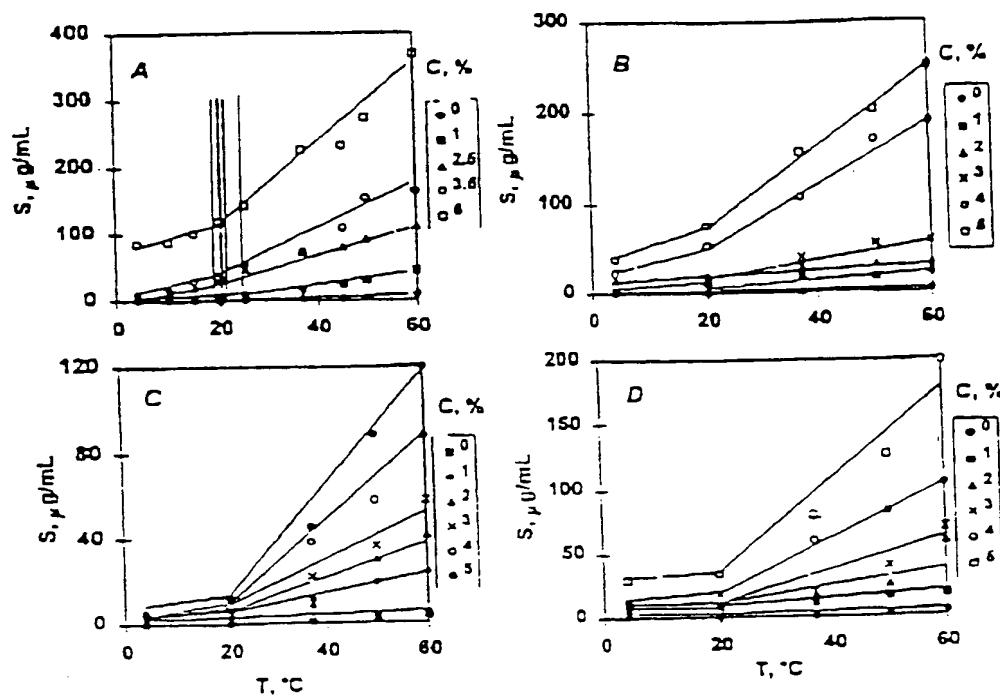


Figure 21

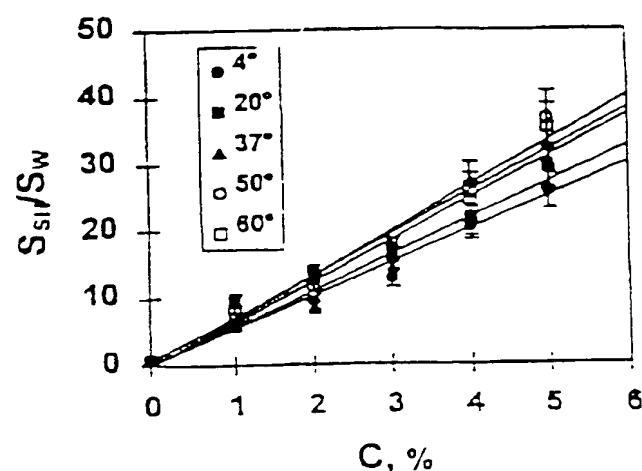


Figure 23

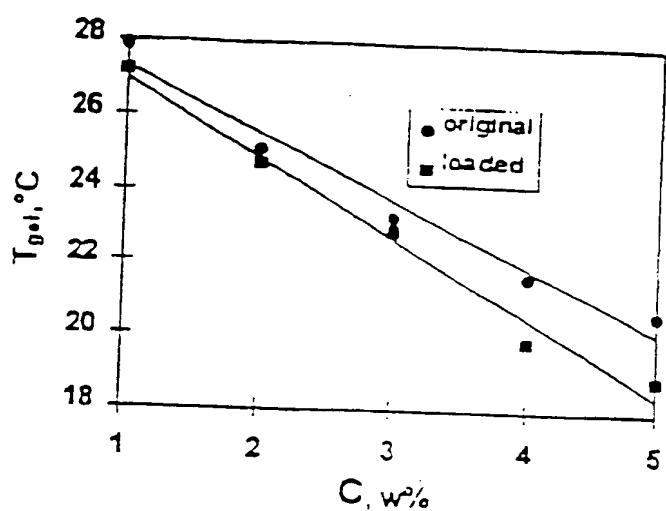
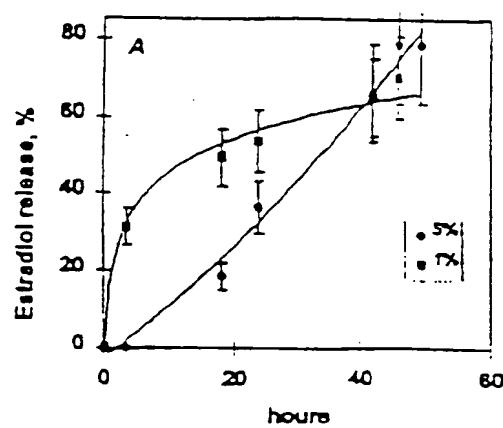
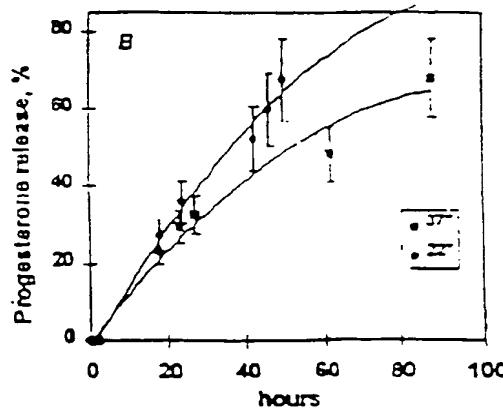


Figure 24



a



b

Figure 25

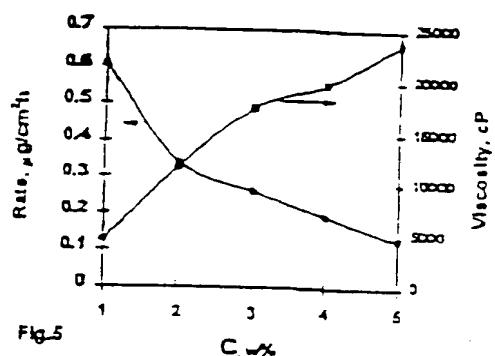


Figure 26

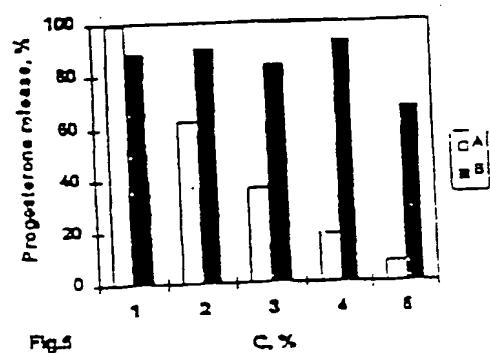


Figure 27

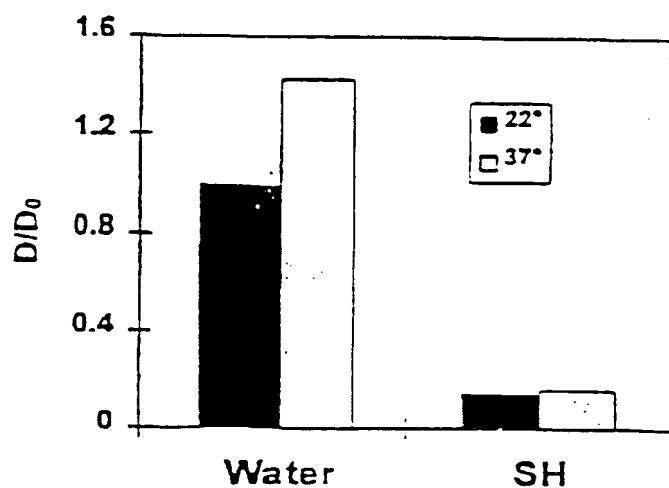


Figure 28

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/08931

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : A61K 7/00, 7/021, 7/025, 7/06, 7/09, 7/16, 7/32, 7/42, 31/74

US CL : Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/49, 59, 63, 64, 65, 70.1, 70.2, 70.7, 78.02, 70.08, 400, 401, 405

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS: COSMETIC, POLYACRYLIC ACID, POLYMER NETWORK, POLOXAMER

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, P	US 5,662,892 A (BOLICH, JR. et al.) 02 September 1997, see entire document.	1-38
Y	US 5,106,609 A (BOLICH, JR et al.) 21 April 1992, see entire document.	1-38

 Further documents are listed in the continuation of Box C. See patent family annex.

- Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
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Date of the actual completion of the international search
03 AUGUST 1998

Date of mailing of the international search report

02 OCT 1998

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Authorized officer

SHELLEY A. DODSON

Telephone No. (703) 308-1235

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/08931

A. CLASSIFICATION OF SUBJECT MATTER:

US CL : 424/49, 59, 63, 64, 65, 70.1, 70.2, 70.7, 78.02, 70.08, 400, 401, 405

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VERSION***

PCT

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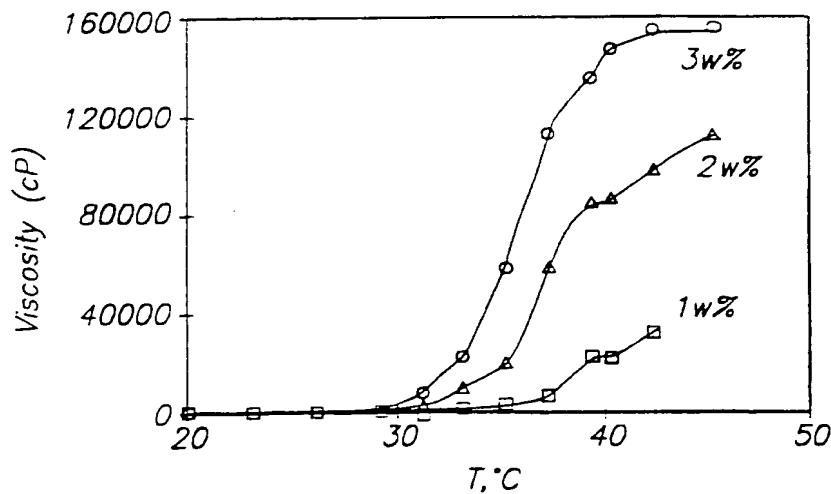
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A61K 7/00, 7/021, 7/025, 7/06, 7/09, 7/16, 7/32, 7/42, 31/74		A1	(11) International Publication Number: WO 98/48768
			(43) International Publication Date: 5 November 1998 (05.11.98)
(21) International Application Number: PCT/US98/08931			63 Webster Street, Whitman, MA 02382 (US). LUCZAK, Scott [US/US]; 3 Remsen Avenue, Medfield, MA 02052 (US). MENDUM, Thomas, H., E. [US/US]; 45 Columbus Avenue #1, Somerville, MA 02143 (US).
(22) International Filing Date: 1 May 1998 (01.05.98)			
(30) Priority Data: 08/846,883	1 May 1997 (01.05.97)	US	(74) Agents: KREBS, Robert, E. et al.; Burns, Doane, Swecker & Mathis, L.L.P., P.O. Box 1404, Alexandria, VA 22313-1404 (US).
(63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application US	08/846,883 (CON)		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).
Filed on	1 May 1997 (01.05.97)		
(71) Applicant (for all designated States except US): MEDLOGIC GLOBAL CORPORATION [US/US]; 4815 List Drive, Colorado Springs, CO 80919 (US).			
(72) Inventors; and			Published
(75) Inventors/Applicants (for US only): RON, Eyal, S. [US/US]; 7 Coach Road, Lexington, MA 02173 (US). HAND, Barry, J. [US/US]; 145 Butternut Hollow, Acton, MA 01718 (US). BROMBERG, Lev, S. [US/US]; 17 Sherwood Road, Swampscott, MA 01907 (US). KEARNEY, Marie [US/US]; 342 Faneuil Street #1, Brighton, MA 02135 (US). SCHILLER, Matthew, E. [US/US]; 23C Sagamore Way, Waltham, MA 02154 (US). AHEARN, Peter, M. [US/US];			With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: COMPOSITIONS FOR COSMETIC APPLICATIONS

(57) Abstract

A cosmetic composition is described having a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous-based medium.



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COMPOSITIONS FOR COSMETIC APPLICATIONS

This application is a continuation-in-part application of copending application U.S.S.N. 60/034,805 filed January 2, 1997, and entitled "Responsive Polymer Networks and Methods of Their Use", which is a continuation-in-part application of copending application PCT/US96/10376 filed June 14, 1996, designating the United States, and entitled "Responsive Polymer Networks and Methods of Their Use", which is a continuation-in-part application of copending application U.S.S.N. 08/580,986 filed January 3, 1996, and entitled "Responsive Polymer Networks and Methods of Their Use", each of which is incorporated entirely by reference.

Field of the Invention

The present invention relates to a cosmetic composition useful in a variety of topical and personal care products, including treatments of disorders and imperfections of the skin or other areas of the body. More particularly, the present invention is directed to a cosmetic composition comprising a poloxamer:poly(acrylic acid) polymer network that can be designed to reversibly gel over a wide range of conditions to provide a composition having a controllable range of viscosities, making it useful in a variety of cosmetic and personal care applications.

20

Background of the Invention

Many examples are known of cosmetic compositions intended for treatment of the skin or elsewhere on the body, where it is desired to have certain properties of viscosity. Hydrogels, such as cellulosics, have been included as thickeners in cosmetic compositions. A hydrogel is a polymer network which absorbs a large quantity of water without the polymer dissolving in water. The hydrophilic areas of the polymer chain absorb water and form a gel region. The extent of gelation depends upon the volume of the solution which the gel region occupies.

Reversibly gelling solutions are known in which the solution viscosity increases and decreases with an increase and decrease in temperature, respectively. Such

reversibly gelling systems are useful wherever it is desirable to handle a material in a fluid state, but performance is preferably in a gelled or more viscous state.

A known material with these properties is a thermal setting gel using block copolymer polyols, available commercially as Pluronic® polyols (BASF, Ludwigshafen, 5 Germany), which is described in U.S. Patent No. 4, 188, 373. Adjusting the concentration of the polymer gives the desired liquid-gel transition. However, concentrations of the polyol polymer of at least 18-20% by weight are needed to produce a composition which exhibits such a transition at commercially or 10 physiologically useful temperatures. Also, solutions containing 18-20% by weight of responsive polymer are typically very viscous even in the "liquid" phase, so that these solutions can not function under conditions where low viscosity, free-flowing is required prior to transition. In addition, these polymer concentrations are so high that the material itself may cause unfavorable interactions during use.

Another known system which is liquid at room temperature, but forms a semi-solid when warmed to about body temperature is formed from tetrafunctional block polymers of polyoxyethylene and polyoxypropylene condensed with ethylenediamine, 15 commercially available as Tetronic® polyols. These compositions are formed from approximately 10% to 5% by weight of the polyol in an aqueous medium. See, U.S. Patent No. 5,252,318.

20 Joshi, et al. in U.S. Patent No. 5,252,318 reports reversible gelling compositions which are made up of a physical blend of a pH-sensitive gelling polymer (such as a cross-linked poly(acrylic acid) and a temperature-sensitive gelling polymer (such as methyl cellulose or block copolymers of poly(ethylene glycol) and poly(propylene glycol)). In compositions including methylcellulose, 5- to 8-fold 25 increases in viscosity are observed upon a simultaneous change in temperature and pH for very low methylcellulose levels (1-4% by weight). See, Figs. 1 and 2 of Joshi, et al. In compositions including Pluronic® and Tetronic® polyols, commercially available forms of poly(ethylene glycol)/poly(propylene glycol) block copolymers, significant increases in viscosity (5- to 8-fold) upon a simultaneous change in temperature and pH 30 are observed only at much higher polymer levels. See, Figs. 3-6 of Joshi, et al.

Hoffman, et al. in WO95/24430 disclose block and graft copolymers comprising a pH-sensitive polymer component and a temperature-sensitive polymer component. The block and graft copolymers are well-ordered and contain regularly repeating units of the pH-sensitive and temperature-sensitive polymer components. The copolymers
5 are described as having a lower critical solution temperature (LCST), at which both solution-to-gel transition and precipitation phase transition occur. Thus, the transition to a gel is accompanied by the clouding and opacification of the solution. Light transmission is reduced, which may be undesirable in many applications, where the aesthetic characteristics of the composition are of some concern.

10 Thus, the known systems which exhibit reversible gelation are limited in that they require large solids content and/or in that the increase in viscosity is less than 10-fold. In addition, some known systems exhibit an increase in viscosity which is accompanied with the undesirable opacification of the composite.

15

Summary of the Invention

It is an object of the present invention to provide a cosmetic composition which includes a component capable of reversible gelation or viscosification.

It is a further object of the invention to provide a cosmetic composition which includes an ingredient capable of gelation or viscosification at very low solids content.

20

It is another object of the present invention to provide a cosmetic composition which possesses improved flow and gelation characteristics as compared to properties possessed by conventional reversible gelation compositions.

25

It is a further object of the invention to provide a polymer network composition for use in cosmetic compositions useful as a surfactant or emulsifier in the solubilization of additives and, in particular, hydrophobic additives.

It is a further object of the invention to provide a cosmetic composition which possesses the appropriate thickness, emolliency and cosmetic effect with a minimum of solids content.

30

It is a further object of the invention to provide a polymer network for use in cosmetic compositions useful as a suspending agent for otherwise insoluble additives.

It is yet a further object of the present invention to provide a composition capable of solubilizing emulsions at elevated temperatures.

It is yet a further object of the invention to provide new and useful cosmetic compositions incorporating the reversibly gelling polymer network composition of the 5 present invention, which take advantage of its unique advantageous properties.

It is yet another object of the present invention to provide reversibly gelling polymer network compositions which are composed of biocompatible polymers.

These and other objects of the invention are achieved with a cosmetic 10 compositions which incorporates a poloxamer:poly(acrylic acid) polymer network as a cosmetically acceptable carrier. The polymer network comprises a poloxamer component randomly bonded to a poly(acrylic acid), or PAA, component in and aqueous-based medium, the polymer network being capable of aggregating in response to an increase in temperature. The reverse thermal viscosifying poloxamer:poly(acrylic acid) polymer network includes random covalent bonding between the poly(acrylic acid) component and the poloxamer component of the network. The polymer network 15 may also include some unbound or "free" poloxamer or other additives which contribute to or modify the characteristic properties of the polymer composition.

In addition, the cosmetic composition includes a cosmetic agent selected to 20 provide a preselected cosmetic effect. By "cosmetic agent", as that term is used herein, it is meant that the additive imparts a cosmetic effect. A cosmetic effect is distinguishable from a pharmaceutical effect in that a cosmetic effect relates to the promoting bodily attractiveness or masking the physical manifestation of a disorder or disease. In contrast, a pharmaceutic seeks to treat the source or symptom of a disease or physical disorder. It is noted however, that the same additives may have either a 25 cosmetic or pharmaceutical effect, depending upon the amounts used and the manner of administration.

By "cosmetic", as that term is used herein, it is meant the cosmetic and personal-care applications intended to promote bodily attractiveness or to cover or mask the physical manifestations of a disorder or disease. Cosmetics include those products 30 subject to regulation under the FDA cosmetic guidelines, as well as sunscreen products,

acne products, skin protectant products, anti-dandruff products, and deodorant and antiperspirant products.

By "gelation" or viscosification, as that term is used herein, it is meant a drastic increase in the viscosity of the polymer network solution. Gelation is dependent on the 5 initial viscosity of the solution, but typically a viscosity increase in the range of 2- to 100-fold, and preferably 5- to 50-fold, and more preferably 10- to 20-fold is observed in the polymer network which is used in the preparation of the cosmetic compositions of the invention. Such effects are observed in a simple polymer network solution and the effect may be modified by the presence of other components in the cosmetic 10 composition.

By "reversibly gelling" as that term is used herein, it is meant that the process of gelation takes place upon an *increase* in temperature rather than a decrease in temperature. This is counter-intuitive, since it is generally known that solution viscosity *decreases* with an increase in temperature.

As used herein, "poloxamer" is a triblock copolymer derived from poly(ethylene glycol)-poly(propylene glycol)-poly(ethylene glycol) blocks. The poloxamer is capable of responding to a change in temperature by altering its degree of association and/or agglomeration. The aggregation may be in the form of micelle formation, precipitation, labile cross-linking or other factors. The poloxamer has the general 15 formula of a triad ABA block copolymer, $(P_1)_a(P_2)_b(P_1)_a$ where P_1 =poly(ethylene glycol) and P_2 =poly(propylene glycol) blocks, where a is in the range of 10-50 and where b is in the range of 50-70.

The poly(acrylic acid) component includes poly(acrylic acid) and its salts. The poly(acrylic acid) supports and interacts with the poloxamer component so that a multi- 25 material, responsive polymer network is formed. The interaction of the poloxamer and poly(acrylic acid) exhibits a synergistic effect, which magnifies the effect of the poloxamer component in viscosifying and/or gelling the solution.

The novel interaction between the constituent polymers components of the polymer network permits formation of gels at very low solids content. Gelation and/or 30 viscosification is observed in aqueous solutions having about 0.01 to 20 wt% of the

poloxamer component and about 0.01 to 20 wt% of the poly(acrylic acid) component. A typical reversibly gelling polymer network may be comprised of less than about 4 wt% of total polymer solids (e.g., poloxamer and poly(acrylic acid)) and even less than 1 wt% total polymer solids while still exhibiting reverse thermal viscosification. Of course, the total solids content including additives of a reversibly gelling polymer network composition may be much higher. The viscosity of the gel increases at least ten-fold with an increase in temperature of about 5°C at pH 7 and 1 wt% polymer. Viscosity increases may be even greater over a larger temperature range at pH 7 and 1% polymer network content.

The relative proportion of poloxamer and poly(acrylic acid) may vary dependent upon the desired properties of the polymer composition. In one embodiment, the poloxamer is present in a range of about 1 to 20 wt% and the poly(acrylic acid) is present in a range of about 99 to 80 wt%. In another embodiment, the poloxamer component is present in a range of about 79 to 60 wt%. In another embodiment, the poloxamer component is present in a range of about 41 to 50 wt%. In another embodiment, the poloxamer component is present in a range of about 51 to 60 wt% and the poly(acrylic acid) component is present in a range of about 49 to 40 wt%. In yet another embodiment, the poloxamer component is present in a range of about 61 to 90 wt% and the poly(acrylic acid) component is present in a range of about 39 to 20 wt%. In another embodiment, the poloxamer component is present in a range of about 81 to 99 wt% and the poly(acrylic acid) component is present in a range of about 10 to 1 wt%.

The poloxamer:poly(acrylic acid) polymer network described above is included in a cosmetic composition to improve the flow characteristics, thickness and other properties of the composition. The composition includes additional cosmetic agents, such as are needed for the cosmetic purpose of the composition. Additives also may be included to modify the polymer network performance, such as to increase or decrease the temperature of the liquid-to-gel transition and/or to increase or decrease the viscosity of the responsive polymer composition.

In one aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic composition to impart thickening properties to the cosmetic composition at the use and/or application temperature. Such thickening properties include enhanced overall viscosity, as well as a desirable viscosity response 5 with temperature. The polymer network may be useful as a thickener in pH ranges where other thickeners are not effective.

In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic composition to stabilize and solubilize hydrophobic agents in the cosmetic composition. The polymer network may be 10 included to increase emulsion stability. Many emulsions, i.e., suspension of small droplets or particles of a first material in a second material, lose viscosity upon heating. As will be demonstrated herein, the poloxamer:poly(acrylic acid) polymer network retains its emulsifying properties even with temperature increase.

In addition, it may be included in the composition to impart emolliency to the 15 composition. The composition may also act as a film-forming agent after it has been applied to the skin. This film-forming agent may be used as a barrier to prevent water loss from the skin which contributes to the moisturization of the skin.

In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network may be included as an additive in cosmetic applications to prevent viscosity 20 loss at elevated temperatures.

Brief Description of the Drawing

The invention is described with reference to the Drawing, which is presented for the purpose of illustration and is in no way intended to be limiting, and in which:

25 FIG. 1 is a graph of viscosity vs. temperature for a 1 wt%, 2 wt%, and 3 wt% responsive polymer network aqueous composition of a poloxamer:poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate of 0.44 sec⁻¹;

FIG. 2 is a graph of viscosity vs. temperature for a 1 wt% 30 poloxamer:poly(acrylic acid) polymer network composition demonstrating reversibility of the viscosity response;

FIG. 3 shows the viscosity response of a 2 wt% poloxamer:poly(acrylic acid) polymer composition at various shear rates;

FIG. 4 shows a viscosity response curve for a 2 wt% poloxamer:poly(acrylic acid) polymer network composition prepared with nominal mixing and stirring and
5 prepared using high shear homogenization (8000 rpm, 30 min);

FIG. 5 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition at various pHs;

FIG. 6 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition with and without addition
10 of 0.25 wt% KCl;

FIG. 7 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition with and without addition of 0.5 wt% acetamide MEA;

FIG. 8 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition without and with 5 wt%, 10
15 wt% and 20 wt% added ethanol, respectively;

FIG. 9 is an illustration of a reversibly gelling polymer network used as an emulsifier and stabilizer for a hydrophobic agent;

FIG. 10 is a schematic illustration of the poloxamer:poly(acrylic acid) polymer
20 network below and above the transition temperature illustrating the aggregation of the hydrophobic poloxamer regions;

FIG. 11 is a graph of viscosity vs. pH for a 1 wt% responsive polymer network aqueous composition of a poloxamer/poly(acrylic acid) (1:1) measured at a shear rate of 0.44 sec⁻¹;

25 FIG. 12 is a plot of viscosity vs. temperature for (a) a 1 wt% responsive polymer network aqueous composition of Pluronic® F127 poloxamer:poly(acrylic acid) (1:1) and (b) a 1 wt% physical blend of Pluronic® F127 poloxamer:poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate 0.22 sec⁻¹;

FIG. 13 is a plot of viscosity vs. temperature for a 1 wt% responsive polymer network aqueous composition of Pluronic® F88 poloxamer:poly(acrylic acid) (1:1) in deionized water at pH 7.0 measured at shear rate of 22 sec⁻¹;

5 FIG. 15 is a plot of viscosity vs. temperature for a responsive polymer network composition of 2 wt% Pluronic® F123 poloxamer:poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate of 22 sec⁻¹;

FIG. 16 is a plot of viscosity vs. temperature for 1 wt% made of series of poloxamers and poly(acrylic acid) (1:1) in deionized water at a shear rate of 132 sec⁻¹;

10 FIG. 17 is a plot showing release of hemoglobin from a poloxamer:poly(acrylic acid) polymer network of the invention;

FIG. 18 is a plot showing the release of lysozyme from the poloxamer:poly(acrylic acid) polymer complex of the invention;

FIG. 19 is a plot showing release of insulin from a poloxamer:poly(acrylic acid) polymer network composition of the invention;

15 FIG. 20 is a plot of viscosity vs. temperature for a poloxamer:poly(acrylic acid) polymer network composition (a) before and (b) after sterilization by autoclave;

FIG. 21 is a plot of viscosity vs. temperature for an oil-free moisturizing formulation prepared form (a) a responsive polymer network composition of the invention and (b) a convention oil-in-water formulation;

20 FIG. 22 is a plot of equilibrium solubility of estradiol (A, B) and progesterone (C, D) in aqueous solutions (pH 7) of Pluronic® F127 (A, C) and responsive polymer network (B, D) vs. temperature;

FIG. 23 is a plot of the ratio of equilibrium solubilities of estradiol in responsive polymer network and water vs. polymer concentration in the responsive polymer network solutions;

25 FIG. 24 is a plot of the effect of loading fluorescein on the onset of gelation of responsive polymer network vs. total polymer concentration in responsive polymer network solution (pH 7.0);

30 FIG. 25 is a plot of the percentage of (a) estradiol and (b) progesterone release from responsive polymer network vs. time;

FIG. 26 is a plot of the rate of progesterone release and macroscopic viscosity vs. polymer concentration;

FIG. 27 is a plot of the percentage of progesterone release vs. polymer concentration in responsive polymer network; and

5 FIG. 28 is a plot of the relative diffusivity of poly(styrene) latex particles in water and responsive polymer network.

Detailed Description of the Invention

The present invention is directed to a cosmetic composition comprising a
10 cosmetically acceptable carrier comprising a novel poloxamer:poly(acrylic acid)
polymer network. The polymer network functions as a temperature sensitive thickening
agent, and in addition possesses surfactant and emulsifying capabilities which may be
beneficial to the cosmetic composition. The polymer network composition according to
the invention includes a poloxamer component randomly bonded to a poly(acrylic acid)
15 component. The two polymer component may interact with one another on a molecular
level. The polymer network contains about 0.01 - 20 wt% each of poloxamer and
poly(acrylic acid). Exemplary polymer network compositions range from about 1:10 to
about 10:1 poloxamer:poly(acrylic acid). Polymer network gel compositions which
exhibit a reversible gelation at body temperature (25-40°C) and/or at physiological pH
20 (ca. pH 3.0-9.0) and even in basic environment up to pH 13 (hair care) are particularly
preferred for cosmetic applications.

In one embodiment of the invention, a 1:1 poloxamer:poly(acrylic acid) polymer
network at appropriate pH exhibits flow properties of a liquid at about room
temperature, yet rapidly thickens into a gel consistency of at least about five times
25 greater, preferably at least about 10 times greater, and even more preferably at least
about 30 times and up to 100 times greater, viscosity upon increase in temperature of
about 10°C and preferably about 5°C. The reversibly gelling polymer network of the
present invention exhibit gelation even at very low polymer concentrations. For
example, polymer network compositions at pH 7 comprising about 0.5 wt% poloxamer
30 component and about 0.5 wt% PAA exhibits a significant increase in viscosity from a

free-flowing liquid (50 cps) to a gel (6000 cps). The observed gelation takes place at low solids contents, such as less than 20 wt% or preferably less than about 10 wt%, or more preferably less than about 2.5 wt% or most preferably less than about 0.1 wt%. Thus, only a small amount by weight of the polymer network need be incorporated into 5 a cosmetic composition in order to provide the desired thickening or viscosifying effect.

The reverse viscosification effect at low polymer concentrations provides clear, colorless gels which are particularly well-suited to cosmetic applications. For example, very little residue is formed upon dehydration which may be important in some 10 applications, such as in topically applied cosmetics. An additional advantage of the polymer network of the invention is that it remains clear and translucent above and below the critical temperature or pH. These characteristics of the reversibly gelling 15 polymer network make it well suited for use in cosmetic compositions.

The polymer network of the present invention technology may be added to cosmetic formulations to increase the thickness and viscosity of the composition. The 15 poloxamer:poly(acrylic acid) polymer network possesses hydrophobic regions capable of aggregation. Unlike conventional thickeners, the aggregation of the polymer network of the present invention is temperature sensitive. Thus the inventive polymer network of the present invention may have a transition temperature (i.e., temperature of aggregation) above room temperature so that the cosmetic composition is of low 20 viscosity at or below room temperature and is of high viscosity at or around body temperature (body temperature includes both surface and internal body temperature). Thus, a composition may be prepared at low temperatures while the polymer network is in a low viscosity state. Mixing of ingredients under low viscosity is expected to be easier, thus simplifying the manufacturing process. Yet, the resultant mixture would be 25 of increased viscosity at use temperatures. As a further advantage, a cosmetic composition comprising poloxamer:poly(acrylic acid) polymer network may be spread thinly to allow for even application, due to its low viscosity at room temperature, but will thicken and "fill" the skin contours upon warming up to body surface temperature.

In another aspect of the invention, the composition may be applied through a 30 nozzle that provides high shear to reduce viscosity, yet the composition regains its

viscosity after application to the skin. This contrasts with conventional formulations which permanently lose viscosity after being subjected to high shear.

In another aspect of the invention, the composition may be formulated and applied as a liquid, spray, semi-solid gel, cream, ointment, lotion, stick, roll-on 5 formulation, mousse, pad-applied formulation, and film-forming formulation.

The poloxamer:poly(acrylic acid) polymer network may also be included in a cosmetic composition for use as a stabilizing, solubilizing or emulsifying agent for a hydrophobic component of the cosmetic formulation. The strong hydrophilic regions of the poloxamer resulting from aggregation and micelle formation create hydrophobic 10 domains which may be used to solubilize and control release of hydrophobic agents. Similar micelle-based systems have been shown to protect trapped peptides against enzymatic degradation from surface enzymes.

The reversibly gelling polymer network of the present invention is a unique polymer composition designed to abruptly change its physical characteristics or the 15 characteristics and properties of materials mixed therewith with a change in temperature. Without intending to be bound by any particular mechanism or chemical structure, it is believed that the structure of the polymer network involves a random bonding of the poloxamer onto the backbone of the poly(acrylic acid). A portion of the poloxamer which is present during the polymerization reaction which forms the 20 poly(acrylic acid) is bonded to the backbone of the forming poly(acrylic acid) through hydrogen abstraction and subsequent reaction. See detailed discussion of the mechanism, below. The combination of the poly(acrylic acid) and randomly bonded poloxamer gives the composition its unique properties. Any free poloxamer remaining after polymerization of PAA remains associated with the random co-polymer, resulting 25 in a miscible composition. Free poloxamer may also be present in the polymer network composition; however, its presence is not required in order to observe reverse thermal viscosification.

The poly(acrylic acid) may be linear, branched and/or cross-linked. Poly(acrylic acid) is capable of ionization with a change in pH of the solution. By 30 ionization, as that term is used with respect to poly(acrylic acid), it is meant the

formation of the conjugate base of the acrylic acid, namely acrylate. As used herein, poly(acrylic acid) includes both ionized and non-ionized versions of the polymer. Changes in ionic strength may be accomplished by a change in pH or by a change in salt concentration. The viscosifying effect of the polymer network is partly a function
5 of the ionization of the poly(acrylic acid); however, reverse thermal gelling may occur without ionization. Changes to the ionic state of the polymer causes the polymer to experience attractive (collapsing) or repulsive (expanding) forces. Where there is no need or desire for the composition to be applied in a high viscosity state, it may be possible to prepare the composition as non-ionized poly(acrylic acid). The body's
10 natural buffering ability will adjust the pH of the applied composition to ionize the poly(acrylic acid) and thereby develop its characteristic viscosity.

The poloxamer possesses regions of hydrophobic character, e.g., poly(propylene glycol) blocks, and hydrophilic character, e.g., poly(ethylene glycol) blocks. The poloxamer may be linear or branched. Suitable poloxamers include triad
15 block copolymers of poly(ethylene glycol) and poly(propylene glycol) having the general formula $(P_1)_a(P_2)_b(P_1)_a$, where P_1 = poly(ethylene glycol), and P_2 = poly(propylene glycol) blocks, where a is in the range of 10-50 and where b is in the range of 50-70, where poly(propylene glycol) represents the hydrophobic portion of the polymer and poly(ethylene glycol) represents the hydrophilic portion of the polymer.
20 Pluronic[®] polymers (BASF) are commercially available for (a) in the range of 16 to 48 and (b) ranging from 54-62. One or more poloxamers may be used in the reversibly gelling polymer network composition of the present invention.

The reversibly gelling responsive polymer networks compositions of the present invention are highly stable and do not exhibit any phase separation upon standing or
25 upon repeated cycling between a liquid and a gel state. Samples have stood at room temperature for more than three months without any noticeable decomposition, clouding, phase separation or degradation of gelation properties. This is in direct contrast to polymer blends and aqueous mixed polymer solutions, where phase stability and phase separation is a problem, particularly where the constituent polymers are
30 immiscible in one another.

And example of the dramatic increase in viscosity and of the gelation of the reversibly gelling polymer network compositions of the invention is shown in Figure 1. Figure 1 is a graph of viscosity vs. temperatures for 1 wt%, 2 wt%, and 3 wt% polymer network compositions comprising 1:1 poloxamer:poly(acrylic acid) hydrated and neutralized. The viscosity measurements were taken on a Brookfield viscometer at a shear rate of 0.44 sec⁻¹ at pH 7.0. All solutions had an initial viscosity of about 1080 cP and exhibited a dramatic increase in viscosity to gel point at about 35°C. This is not typical of all polymer network compositions since polymerization condition will affect initial viscosity. Final viscosities were approximately 33,000 cP, 100,000 cP and 10 155,000 cP for the 1 wt%, 2 wt% and 3 wt% compositions, respectively. This represents viscosity increases of about 30-, 90- and 140-fold, respectively. This effect is entirely reversible. Upon cooling, the composition regains its initial viscosity. This is demonstrated in Figure 2, where a 1 wt% poloxamer:poly(acrylic acid) composition is warmed through the transition temperature up to 35°C (simple curve), cooled to 15 room temperature (24°C, ticked curve) and then warmed again up to above the transition temperature (open box curve). The viscosity response was virtually identical in all three instances.

As would be expected with a non-Newtonian system, the solution viscosity differs with different shear rates. Figure 3 shows the viscosity response of a 2 wt% poloxamer:poly(acrylic acid) polymer composition at various shear rates. The viscosity response is consistent between 24°C and 34°C; however, the final viscosity is reduced with increasing shear rate.

However, unlike many prior art hydrogels, e.g., carbomers, the poloxamer:poly(acrylic acid) polymer network composition does not permanently loose viscosity after being subjected to high shear conditions. The poloxamer:poly(acrylic acid) polymer network composition remains unaffected by such shear conditions as homogenization. Figure 4 compares the viscosity response curve of a 2 wt% poloxamer:poly(acrylic acid) polymer composition prepared with nominal mixing (simple line) and stirring with that of a polymer composition of similar composition

prepared using high shear homogenization designated by a ticked line (8000 rpm, 30 min). No significant decrease in viscosity is observed.

A number of factors influence the viscosity and transition temperature of the composition. The more important factors include polymer concentration, pH, and
5 presence and nature of additives.

The effect of pH on the viscosity of reversibly gelling polymer networks is shown in Figure 5. Increasing pH from the starting pH has a lesser effect on the viscosity than decreasing the pH. This may relate to the extent of ionization of the poly(acrylic acid) component of the polymer network as discussed above. This may be
10 clearly seen in Figure 5 when comparing the viscosity response of a 1 wt% poloxamer:poly(acrylic acid) polymer composition at pH 5 and pH 11. Satisfactory viscosities can be obtained at high pHs indicating the potential value of the reversibly gelling polymer network in products such as depilatories, hair straighteners and hair relaxers.

15 The responsive polymer network may also include additives for influencing the performance of the polymer composition, such as the transition temperature and the viscosity of the polymer composition above the transition temperature. The following list is not intended to be exhaustive but rather illustrative of the broad variety of additives which can be used.

20 These materials include solvents (e.g., 2-propanol, ethanol, acetone, 1,2-pyrrolidinone, N-methylpyrrolidinone), salts (e.g., calcium chloride, sodium chloride, potassium chloride, sodium or potassium phosphates, borate buffers, sodium citrate), preservatives (benzalkonium chloride, phenoxyethanol, sodium hydroxymethylglycinate, ethylparaben, benzoyl alcohol, methylparaben, propylparaben, butylparaben, Germaben II), humectant/moisturizers (acetamide MEA, lactamide MEA, hydrolyzed collagen, mannitol, panthenol, glycerin), lubricants (hyaluronic acid, mineral oil, PEG-60-lanolin, PPG-12-PEG-50-lanolin, PPG-2 myristyl ether propionate) and surfactants.

Surfactants may be divided into three classes: cationic, anionic, and non-ionics.
30 An example of a cationic surfactant used is ricinoleamidopropyl ethyldimonium

ethosulfate (Lipoquat R). Anionic surfactants include sodium dodecyl sulfate and ether sulfates such as Rhodapex CO-436. Nonionic surfactants include Surfynol CT-111, TG, polyoxyethylene sorbitan fatty acid esters such as Tween 65 and 80, sorbitan fatty acid esters such as Span 65, alkylphenol ethoxylates such as Igepal CO-210 and 430, 5 dimethicone copolyols such as Dow Corning 190, 193, and Silwet L7001.

The addition of polymers has been studied including xanthan gum, cellulosics such as hydroxyethylcellulose (HEC), carbomethoxycellulose (CMC), lauryldimonium hydroxypropyl oxyethyl cellulose (Crodacel QL), hydroxypropylcellulose (HPC), and hydroxypropylmethylcellulose (HPMC), poly(acrylic acid), cyclodextrins, methyl 10 acrylamido propyl triammonium chloride (MAPTAC), polyethylene oxide, polyvinylpyrrolidone, polyvinyl alcohol, and propylene oxide/ethylene oxide random copolymers. Poloxamers may also be used as additives. Examples include both the Pluronic® polyols having an $(P_1)_a(P_2)_b(P_1)_a$ structure such as Pluronic® F38, L44, P65, F68, F88, L92, P103, P104, P105, F108, L122, and F127, as well as the reverse 15 Pluronic® R series $(P_2)_a(P_1)_b(P_2)_a$ structure such as Pluronic® 17R2 and 25R8. Other miscellaneous materials include propylene glycol, urea, triethanolamine, alkylphenol ethoxylates (Iconol series), and linear alcohol alkoxylates (Plurafac series).

Additives affect the viscosity of the compositions differently depending upon the nature of the additive and its concentration. Some additives will affect the initial or 20 final viscosity, whereas others will affect the temperature range of the viscosity response, or both.

Potassium chloride and acetamide MEA are two examples of additives which decrease the final viscosity of the composition (see Example 30). KCl (0.25 %) added to a 1 wt% reversibly gelling polymer composition reduces the viscosity by about 3000 25 cps. See Figure 6. The humectant, acetamide MEA, lowers the viscosity of a 1 wt% solution by approximately 1, 500 cps (see Figure 7).

Glycerin, ethanol and dimethicone copolymer have been shown to affect the temperature range over which the viscosity response occurs. Glycerin shifts the transition temperature to a slightly lower range from an initial 24-34 °C to about 24-30 30 °C. but does not affect the final viscosity (see Example 44). The effect of ethanol on

the viscosity is different at different concentration levels. At 5 wt% and 10 wt% added ethanol, the transition temperature is shifted to lower ranges, e.g., 24-29°C and 20-29°C, respectively. At 20 wt% added ethanol, the composition not only exhibits a lowering of the transition temperature, but also a marked increase in initial and final viscosity. See Figure 8. Dimethicone copolymer (1 wt%) also changed the transition temperature, but in this instance the transition temperature range was raised to 28-41°C. Thus, proper selection of additives permits the formulator to adjust the transition temperature to various ranges.

Those skilled in the art will appreciate that the polymer network compositions of the present invention may be utilized for a wide variety of cosmetic and personal care applications. To prepare a cosmetic composition, an effective amount of cosmetically active agent(s) which imparts the desirable cosmetic effect is incorporated into the reversibly gelling polymer network composition of the present invention. Preferably the selected agent is water soluble, which will readily lend itself to a homogeneous dispersion throughout the reversibly gelling polymer network composition; however, the polymer network has been demonstrated to significantly solubilize or suspend hydrophilic agents in order to improve formulation homogeneity (see Example 36). It is also preferred that the agent(s) is nonreactive with the polymer network composition. For materials which are not water soluble, it is also within the scope of the invention to disperse or suspend powders or oil (lipophilic materials) throughout the polymer network composition. It will also be appreciated that some applications may require a sterile environment. It is contemplated as within the scope of the invention that the reversibly gelling polymer network compositions of the present invention may be prepared under sterile conditions. An additional feature of the reversibly gelling polymer composition is that it is prepared from constituent polymers that have known accepted toxicological profiles.

The poloxamer:poly(acrylic acid) polymer network has been evaluated under Good Laboratory Practice (GLP) standard protocols known in the art for toxicity in animal models and found to exhibit no toxic effects. The results of the toxicity study

are summarized in the following Table 1. The non-toxicity of the polymer network makes it an ideal candidate for use in cosmetic compositions.

Table 1. Toxicity data for 6% poloxamer:poly(acrylic acid) solution at pH 7.

	Reaction Tests	Mode of Testing	Results
5	Skin sensitization	guinea pig - topical	not a sensitizer
	Eye irritation	rabbit - eye instillation	negative
	Primary dermal irritation	rabbit - topical	very slight edema (1 on a scale of 1-8)
10	Acute dermal toxicity	rat - single dose (2g/kg)	no toxicity
	Acute oral toxicity	rat - single dose (5g/kg)	no toxicity
	AMES test		negative

Exemplary cosmetic and personal care applications, for which the reversibly gelling polymer network composition may be used include, but are not limited to, baby products, such as baby shampoos, lotions, powders and creams; bath preparations, such as bath oils, tablets and salts, bubble baths, bath fragrances and bath capsules; eye makeup preparations, such as eyebrow pencil, eyeliner, eye shadow, eye lotion, eye makeup remover and mascara; fragrance preparations, such as colognes and toilet waters, powders and sachets; noncoloring hair preparations, such as hair conditioner, hair spray, hair straighteners, permanent waves, rinses, shampoos, tonics, dressings and other grooming aids; color cosmetics; hair coloring preparations such as hair dye, hair tints, hair shampoos, hair color sprays, hair lighteners and hair bleaches; makeup preparations such as face powders, foundations, leg and body paints, lipstick, makeup bases, rouges and makeup fixatives; manicuring preparations such as basecoats and undercoats, cuticle softeners, nail creams and lotions, nail extenders, nail polish and enamel, and nail polish and enamel remover; oral hygiene products such as dentrifrices and mouthwashes; personal cleanliness, such as bath soaps and detergents, deodorants, douches and feminine hygiene products; shaving preparations such as aftershave lotion, beard softeners, men's talcum, shaving cream, shaving soap and preshave lotions; skin care preparations such as cleansing preparations, skin antiseptics, depilatories, face and

neck cleansers, body and hand cleansers, foot powders and sprays, moisturizers, night preparations, paste masks, and skin fresheners; and suntan preparations such as suntan creams, gels and lotions, indoor tanning preparations.

Preparation of the above-named cosmetic compositions and others may be
5 accomplished with reference to any of the cosmetic formulation guidebooks and industry journals which are available in the cosmetic industry. These references supply standard formulations which may be modified by the addition or substitution of the reversible viscosifying polymer network of the present invention into the formulation. Suitable guidebooks include Cosmetics and Toiletries Magazine, Vo. 111 (March,
10 1996); Formulary: Ideas for Personal Care, Croda, Inc., Parsippany, NJ (1993); and Cosmeticon: Cosmetic Formulary, BASF, which are hereby incorporated in their entirely by reference.

The cosmetic composition may be in any form. Suitable forms include but are not limited to lotions, creams, sticks, roll-on formulations, mousses, aerosol sprays,
15 pad-applied formulations, and film-forming formulations.

As those skilled in the art will appreciate, the foregoing list is exemplary only. Because the reversibly gelling polymer network composition of the present invention is suited for application under a variety of physiological conditions, a wide variety of cosmetically active agents may be incorporated into and administered from the polymer
20 network composition. In addition to the poloxamer:poly(acrylic acid) polymer network, additional cosmetically acceptable carriers may be included in the composition, such as by way of example only, emollients, surfactant, humectants, powders and other solvents. By way of example only, the cosmetic composition also may include additional components, which serve to provide additional aspects of the
25 cosmetic affect or to improve the stability and/or administration of the cosmetic. Such additional components include, but are not limited to, preservatives, abrasives, acidulents, antiacne agents, anti-aging agents, antibacterials, anticaking, anticaries agents, anticellulites, antidandruff, antifungal, anti-inflammatories, anti-irritants, antimicrobials, antioxidants, antiperspirants, antiseptics, antistatic agents, astringents,
30 binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents,

conditioners, deodorants, depilatories, detergents, dispersants, emollients, emulsifiers, enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glossers, hair conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers, powders, propellant, protein, refatting agents, sequestrant, silicones, skin calming agents, skin cleansers, skin conditioners, skin healing, skin lightening agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or fragrances. Suitable materials which serve the additive functions listed here are well known in the cosmetic industry. A listing of the additive function and materials suitable for incorporation into the cosmetic composition may be found in Appendix A, which is appended hereto at the end of the specification. Further information may be obtained by reference to The Cosmetic Bench Handbook, Cosmetics & Toiletries, C.C. Urbano, editor, Allured Publ. Corp., 1996, which is hereby incorporated in its entirety by reference.

A brief description of some preferred additives and cosmetically active agents follows. The compositions of the invention include a safe and effective amount of a cosmetically active agent. "Safe and effective", as it is used herein, means an amount high enough to significantly positively modify the condition to be treated or the cosmetic effect to be obtained, but low enough to avoid serious side effects.

Preservative can be desirably incorporated into the cosmetic compositions of the invention to protect against the growth of potentially harmful microorganisms. Suitable preservatives include, but are not limited to, alkyl esters of parahydroxybenzoic acid, hydantoin derivatives, parabens, propionate salts, triclosan tricarbanilide, tea tree oil, alcohols, farnesol, farnesol acetate, hexachlorophene and quaternary ammonium salts, such as benzolconjur, and a variety of zinc and aluminum salts. Cosmetic chemists are familiar with appropriate preservatives and may select that which provides the

required product stability. Preservatives are preferably employed in amounts ranging from about 0.0001% to 2% by weight of the composition.

Emollients can be desirably incorporated into the cosmetic compositions of the invention to provide lubricity to the formulation. Suitable emollients may be in the 5 form of volatile and nonvolatile silicone oil, highly branched hydrocarbons and synthetic esters. Amounts of emollients may be in the range of about 0.1-30 wt%, and preferably about 1-20 wt%. By way of example only, suitable silicones include cyclic or linear polydimethylsiloxanes, polyalkylsiloxanes, polyalkylarylsiloxanes and polyether siloxanes. By way of example only, suitable ester emollients include alkenyl 10 esters of fatty acids, polyhydric alcohols, such as ethylene glycol mono and di-fatty acid esters, polyethylene glycol and the like, ether-esters, such as fatty acid esters of ethoxylated fatty alcohols, wax esters, such as beeswax, spermaceti, myristyl myristate and stearyl stearate, and sterol esters such as cholesterol fatty acids.

A variety of oily emollients may be employed in the compositions of this 15 invention. These emollients may be selected from one or more of the following classes:

1. Triglyceride esters such as vegetable and animal fats and oils. Examples include castor oil, cocoa butter, safflower oil, cottonseed oil, corn oil, olive oil, cod liver oil, almond oil, avocado oil, palm oil, sesame oil, squalene, Kikui oil and soybean oil;
2. Acetoglyceride esters, such as acetylated monoglycerides;
3. Ethoxylated glycerides,
- 20 such as ethoxylated glycetyl monostearate;
4. alkyl esters of fatty acids having 10 to 20 carbon atoms, such as, methyl, isopropyl, and butyl esters of fatty acids, and including hexyl laurate, isohexyl laurate, isohexyl palmitate, isopropyl palmitate, decyl oleate, isodecyl oleate, hexadecyl stearate, decyl stearate, isopropyl isostearate, diisopropyl adipate, diisohexyl adipate, dihexyldecyl adipate, diisopropyl sebacate, lauryl lactate,
- 25 myristyl lactate, and cetyl lactate;
5. Alkenyl esters of fatty acids having 10 to 20 carbon atoms, such as oleyl myristate, oleyl stearate, and oleyl oleate and the like;
6. Fatty acids having 10 to 20 carbon atoms, such as pelargonic, lauric, myristic, palmitic, stearic, isostearic, hydroxystearic, oleic, linoleic, ricinoleic, arachidic, behenic, and erucic acids and the like;
7. Fatty alcohols having 10 to 20 carbon atoms,
- 30 such as, lauryl, myristyl, cetyl, hexadecyl, stearyl, isostearyl, hydroxystearyl, oleyl,

ricinoleyl, behenyl, erucyl, and 2-octyl dodecanyl alcohols are examples of satisfactory fatty alcohols and the like; 8. Fatty alcohol ethers, such as ethoxylated fatty alcohols of 10 to 20 carbon atoms including the lauryl, cetyl, stearyl, isostearyl, oleyl, and cholesterol alcohols, having attached thereto from 1 to 50 propylene oxide groups; 9.

5 Ether-esters such as fatty acid esters of ethoxylated fatty alcohols; 10. lanolin and derivative, such as lanolin, lanolin oil, lanolin wax, lanolin alcohols, lanolin fatty acids, isopropyl lanolate, ethoxylated lanolin, ethoxylated lanolin alcohols, ethoxylated cholesterol, propoxylated lanolin alcohols, acetylated lanolin alcohols, lanolin alcohols linoleate, lanolin alcohols ricinoleate, acetate of lanolin alcohols ricinoleate, acetate of 10 ethoxylated alcohols-esters, hydrogenolysis of lanolin, ethoxylated hydrogenated lanolin, ethoxylated sorbitol lanolin, and liquid and semisolid lanolin absorption bases and the like; 11. Polyhydric alcohol esters, such as, ethylene glycol mono and di-fatty acid esters, diethylene glycol mono- and di-fatty acid esters, polyethylene glycol (200-6000) mono- and di-fatty acid ester, propylene glycol mono- and di-fatty acid esters,

15 polypropylene glycol 2000 monooleate, polypropylene glycol 2000 monostearate, ethoxylated propylene glycol monostearate, glyceryl mono- and di-fatty acid esters, polyglycerol polyfatty esters, ethoxylated glyceryl monostearate, 1,2-butylene glycol monostearate, 1,2-butylene glycol distearate, polyoxyethylene polyol fatty acid ester, sorbitan fatty acid esters, and polyoxyethylene sorbitan fatty acid esters are satisfactory

20 polyhydric alcohol esters; 12. Waxes such as beeswax, spermaceti, myristyl myristate, stearyl stearate; 13. Beeswax derivatives, e.g., polyoxyethylene sorbitol beeswax; 14. Vegetable waxes including carnauba and candelilla waxes; 15. Phospholipids such as lecithin and derivatives; 16. Sterol including cholesterol and cholesterol fatty acid esters; 17. Amides such as fatty acid amides, ethoxylated fatty acid amides, solid fatty acid alkanolamides.

Humectants may be added to the composition to increase the effectiveness of the emollient, to reduce scaling, to stimulate removal of built-up scale and improve skin feel. by way of example only, suitable humectants include polyhydric alcohols, such as glycerol, polyalkylene glycols, alkylene polyols, their derivatives, propylene glycol, dipropylene glycol, polypropylene glycol, polyethylene glycol, sorbitol, hydroxypropyl

sorbitol, hexylene glycol, 1,3-butylene glycol, 1,2,6-hexanetriol, ethoxylated glycerol, propoxylated glycerol and the like. The amount of humectant may be in the range of about 0.5-30 wt% and preferably between 1-15 wt%.

In topical skin care applications, a variety of active substances may be
5 advantageously employed. by way of example, only suitable active agents which may be incorporated into the cosmetic composition include anti-aging active substances, anti-wrinkle active substances, hydrating or moisturizing or slimming active substances, depigmenting active substances, substances active against free radicals, anti-irritation active substances, sun protective active substances, anti-acne active substances, firming-
10 up active substances, exfoliating active substances, emollient active substances, and active substances for the treating of skin disorders such as dermatitis and the like.

By way of example only, in the case of hydration, one or more moisturizers may be used, such as glycerin or urea, in combination with one or more precursor agents for the biosynthesis of structural proteins, such as hydroxyproline, collagen
15 peptides, and the like.

By the way of example only, in case of slimming, at least one ketolytic agent or an alpha-hydroxyacid such as a salicylic acid or 5-n-octanoic salicylic acid may be used in combination with at least one liporegulating agent such as caffeine.

By way of example only, in the case of depigmentation, at least one keratolytic
20 agent is used in combination with a depigmenting agent such as hydroquinone, tyrosinase inhibitor (kasic acid), kojic acid and sodium metabisulfite and the like.

By way of example only, in the case of protection against free radical agents, vitamin E (against CO₂ radicals), superoxide dismutase (against O₂ free radicals) and sugar and caffeine (against OH free radicals).

25 By way of example only, in the case of anti-aging, moisturizers, sunscreens, alpha-hydroxyacids, salicylic acid or surface restructuring agents may be used in combination with enzymes for the repair of DNA, vascular protective agents or phospholipids rich in oligoelements and polyunsaturated fatty acids.

By way of example only, in the case of anti-acne agents, keratolytics, such as salicylic acid, sulfur, lactic acid, glycolic, pyruvic acid, urea, resorcinol and N-acetylcysteine, and retinoids, such as retinoic acid and its derivatives may be used.

By way of example only, in the case of anti-inflammation, non-steroidal anti-inflammatory agents (NSAIDS) may be used, such as propionic acid derivatives, acetic acid, fenamic acid derivatives, biphenylcarboxylic acid derivatives, oxicams, including but not limited to aspirin, acetaminophen, ibuprofen, naproxen, benoxaprofen, flurbiprofen, fensufen, ketoprofen, indoprofen, pirprofen, carprofen, and bucloxic acid and the like.

By way of example only, in the case of antibiotic and antimicrobials may be included in the composition of the invention. Antimicrobial drugs preferred for inclusion in compositions of the present invention include salts of β -lactam drugs, quinolone drugs, ciprofloxacin, norfloxacin, tetracycline, erythromycin, amikacin, triclosan, doxycycline, capreomycin, chlorhexidine, chlortetracycline, oxytetracycline, clindamycin, ethambutol, hexamidine isethionate, metronidazole, pentamidine, gentamicin, kanamycin, lineomycin, methacycline, methanamine, minocycline, neomycin, netilmicin, paromomycin, streptomycin, tobramycin, miconazole and amanfadine and the like.

By way of example only, in the case of sunscreen protection, suitable agents include 2-ethylhexyl p-methoxycinnamate, 2-ethylhexyl N,N-dimethyl-p-aminobenzoate, p-aminobenzoic acid, 2-phenyl p-methoxycinnamate, 2-ethylhexyl octocrylene, oxybenzone, homomenthyl saliclate, octyl salicylate, 4,4'-methoxy-t-butylbibenzoylmethen, 4-isopropyl dibenzoylmethane, 3-benzylidene camphor, 3-(4-methylbenzylidene) camphor, titanium dioxide, zinc oxide, silica, iron oxide, and mixtures thereof and the like. The sunscreening agents disclosed therein have, in a single molecule, two distinct chromophore moieties which exhibit different ultra-violet radiation absorption spectra. One of the chromophore moieties absorbs predominantly in the UVB radiation range and the other absorbs strongly in the UVA radiation range. These suncreening agents provide higher efficacy, broader UV absorption, lower skin penetration and longer lasting efficacy relative to conventional sunscreens. Generally,

the sunscreens can comprise from about 0.5% to about 20% of the compositions useful herein. Exact amounts will vary depending upon the sunscreen chosen and the desired Sun Protection Factor (SPF). SPF is a commonly used measure of photoprotection of a sunscreen against erythema.

- 5 By way of example only, in the case of sunless tanning agents include, dihydroxyacetone, glyceraldehyde, indoles and their derivatives, and the like.

The composition may include cleansing surfactants. Cleansing surfactants are cationic, anionic, amphoteric or non-ionic surfactants which are water-soluble and produce a consumer-acceptable amount of foam. Non-ionic surfactants are well-known materials and have been used in cleansing compositions. Therefore, suitable non-ionic surfactants include, but are not limited to, compounds in the classes known as alkanolamides, block copolymers of ethylene and propylene, ethoxylated alcohols, ethoxylated alkylphenols, alkyl polyglycosides and mixtures thereof. In particular, the non-ionic surfactant can be an ethoxylated alkylphenol, i.e., a condensation product of 10 an alkylphenol having an alkyl group containing from about 6 to about 12 carbon atoms in either a straight chain or branched chain configuration with ethylene oxide, the ethylene oxide being present in an amount equal to at least about 8 moles ethylene oxide per mole of alkylphenol. Examples of compounds of this type include 15 nonylphenol condensed with about 9.5 moles of ethylene oxide per mole of phenol; dodecylphenol condensed with about 12 moles of ethylene oxide per mole of phenol; dinonylphenol condensed with about 15 moles of ethylene oxide per mole of phenol; octylphenol condensed with about ten moles of ethylene oxide per mole of phenol; and diisooctyl phenol condensed with about 15 moles of ethylene oxide per mole of phenol. 20

A wide variety of acids, bases, buffers, and sequestrants can be utilized to adjust 25 and/or maintain the pH and ionic strength of the compositions useful in the instant invention. Materials useful for adjusting and/or maintaining the pH and/or the ionic strength include sodium carbonate, sodium hydroxide, hydrochloric acid, phosphoric acid, sulfuric acid, acetic acid, sodium acetate, sodium hydrogen phosphate, sodium dihydrogen phosphate, citric acid, sodium citrate, sodium bicarbonate, triethanolamine, 30 EDTA, disodium EDTA, tetrasodium EDTA, and the like.

The polymer network may be useful as a solubilization agent in cosmetic and personal care applications. A self-assembling system comprising the reversibly gelling polymer network exhibits thermogelation, pH sensitivity, and the ability to solubilize hydrophobic agents in aqueous media. When poloxamer is copolymerized with

5 poly(acrylic acid) (PAA) according to the invention, the resulting copolymer network is bioadhesive and can be applied in a number of therapies. The materials described in this invention combine "reverse" thermoviscosification mucoadhesion, solubilization of hydrophobic and difficult to manage moieties, easy formulation, and protection of agents from degradation to provide a superior medium for cosmetic and personal care

10 products.

The reversible viscosification of the polymer network at elevated temperatures makes the materials idea for use as thickening agents in cosmetic and personal care products at any temperature above the transition. Another use of the "thickening" of solutions containing the polymer network as a thickener supplement in emulsions.

15 Currently, emulsifiers are often negatively affected by increased temperatures. An additive with reverse thermal viscosification properties, however, would react in exactly the opposite way, increasing its ability to emulsify as it gained three-dimensional structure upon heating above its transition temperature.

In the applications where the reversibly gelling polymer composition can act as

20 a surfactant, the polymer network will have the ability to act as a primary emulsifier without any (or with very little) addition of traditional surfactant. The responsive polymer network will also act as a stabilizer for oil soluble ingredients that would conventionally need to be solubilized by oils in formulation. The hydrophobic portion of the polymer network (PPO) forms domains which act as reservoirs for an oil-soluble

25 or hydrophobic additive, such as an oil droplet, as is illustrated in Figure 9. These two features of the material of the invention would enable it to be used as a base in a cosmetic formulation that would be non-greasy due to lack of oils, such as petrolatum and mineral oil. The increase in viscosity above the transition temperature adds structure and yield value to the water phase and results in a highly stable emulsion.

Thus, poloxamer:poly(acrylic acid) polymer network compositions are valuable materials in the formulation of cosmetic and personal care products. In particular, they may be useful as rheology modifiers, provide a cushioning effect on the skin, offer barrier properties and controlled release of actives. In addition, the polymer
5 composition may serve as a surfactant and is compatible with most ingredients used in the cosmetic industry.

The above properties of the poloxamer:poly(acrylic acid) polymer network provides a cosmetic composition that spreads evenly and smoothly and which leaves a lubricious feel to the skin. A sensory evaluation was conducted with seven random
10 volunteers in order to determine the sensory effect of a cream formulation on the skin. An oil-free cosmetic formulation was prepared substantially as set forth in Example 33(b) and was compared to Nivea Oil Free, a product of Beiersdorf of Germany. Volunteers placed unmarked samples on the skin and evaluated the formulation based upon its feel and texture. The samples were rated on a scale of 1 (bad) to 5 (good).
15 The oil-free cosmetic formulation of the present invention scored equally to the Nivea Oil Free moisturizing product. Both samples scored a 3.5 on the rating scale.

The observed thermal behavior of the reversibly gelling polymer network suggests that the increase in viscosity is due to aggregation of the hydrophobic portion of the poloxamer at the transition temperature which, because of bonding with the
20 poly(acrylic acid) component, serve as temporary cross-links which physically bridge adjacent chains of poly(acrylic acid) to provide a viscous gel-like extended polymer structure. The aggregation process may be understood as occurring as shown in Figure 10, in which a backbone 20 represent poly(acrylic acid), a thin band 24 represents the hydrophobic poly(propylene) glycol region of the poloxamer and a thick band 26
25 represents the hydrophilic poly(ethylene glycol) region of the poloxamer. Below the transition temperature, the polymer network is randomly arranged, as is shown in Figure 10(a). At or above the transition temperature, the hydrophobic regions 24 associate to form aggregations or micelles 28, as is shown in Figure 10(b). The association increases the effective molecular weight of the polymer network
30 composition with the corresponding increase in viscosity.

A general method of making the poloxamer:PAA polymer network compositions of the present invention comprises solubilization of the poloxamer in acrylic acid monomer, followed by polymerization of the monomer to PAA. Polymerization may be accomplished by addition of a polymerization initiator or by irradiation techniques.

5 The initiator may be a free radical initiator, such as chemical free radical initiators and UV or gamma radiation initiators. Conventional free radical initiators may be used according to the invention, including, but in no way limited to ammonium persulfate, benzoin ethyl ether, benzyl peroxide, 1, 2'-azobis(2,4-dimethylpentanitrile) (Vazo 52) and azobisisobutyronitrile (AIBN). Initiation may also be accomplished using cationic 10 or ionic initiators. many variations of this method will be apparent to one skilled in the art and are contemplated as within the scope of the invention. For example, the poloxamer component may be dissolved in an acrylic acid/water mixture instead of pure monomer. It may be desirable to remove unreacted monomer and/or free poloxamer from the resultant polymer network. This may be accomplished using conventional 15 techniques, such as, by way of example, dialysis or sohxlet extraction.

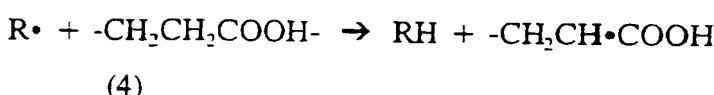
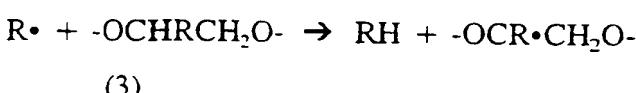
Without intending to be bound by a particular mechanism or structure, the following scheme represents a possible chemical mechanism for the formulation of the system here described. These mechanisms are presented by way of explanation and are no way limiting of the invention. It is contemplated that these or other mechanistic 20 routes may in fact occur in the formation of the polymer network of the present invention.

I. Initiation



25

II. Hydrogen Abstraction



30

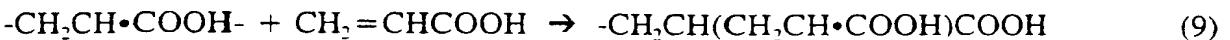
III. Chain Transfer



IV. Propagation



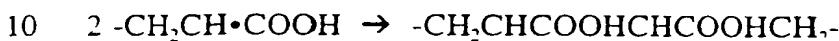
5 V. Side Chain Branching Off AA Backbone



VI. AA Branching Off Poloxamer Backbone



VII. Homogenous Termination



(11)

VIII. Heterogenous Termination with Bonding of Pluronic to PAA



(12a)

15.

The scheme for bonding of poloxamer to acrylic acid may involve initiation (Eq. 1), hydrogen abstraction from the propylene or ethylene moiety of the poloxamer (Eq. 3), and attachment to acrylic acid via addition across the unsaturated bond (Eq. 10). Propagation (Eq. 8) leads to the final PAA.

20 Alternatively, the mechanism may proceed by initiation according to Eqs. (1) and (2), propagation to form PAA (Eq. 8), a chain transfer reaction to generate a reactive poloxamer moiety (Eq. 5), followed by addition of the reactive poloxamer moiety to the unsaturated bond of acrylic acid (Eq. 10) and subsequent propagation of the PAA chain.

25 Thus, the polymer network may include a plurality of poly(acrylic acid) units bounded to a single poloxamer unit, or alternatively, a plurality of poloxamer units bound to a single PAA backbone. Combinations of these alternatives are also a possibility.

Reverse phase polymerization may be used to prepare polymer network beads
30 by dispersion of the poloxamer and acrylic acid monomer mixture in a nonpolar solvent

- such as hexane or heptane. The aggregating polymer/monomer solution is dispersed with agitation in the nonpolar solvent in order to suspend droplets of the solution. Polymerization of the monomer is initiated by conventional means (i.e., addition of an initiator or irradiation) in order to polymerize the monomer and form responsive
- 5 polymer network beads. See U.S.S.N. 08/276.532 filed July 18, 1995 and entitled "Useful Responsive Polymer Gel Beads" for further information on the preparation of polymer gel beads, herein incorporated by reference. Such a method may be particularly desirable to provide a heat sink for the heat generated in the exothermic polymerization reaction.
- 10 The polymer network complexes and aqueous gelling solutions of the present invention may be understood with reference to the following examples, which are provided for the purposes of illustration and which are in no way limiting of the invention.
- 15 Example 1. This example describes the synthesis of a polymer network and an aqueous responsive polymer network solution prepared using a triblock polymer of poly(ethylene glycol) and poly(propylene glycol), Pluronic® F27 polyol, and poly(acrylic acid). This example also characterizes the gelation and the physical properties of the resultant polymer network.
- 20 Synthesis. Block copolymer of poly(propylene glycol) (PPG) and poly(ethylene glycol) (PEG) having triad ABA structure $(\text{PEG})_A(\text{PPG})_B(\text{PEG})_A$ (Pluronic® F127 NF polyol, Poloxamer 407 NF polyol, where "F" means Flakes, "12" means $12 \times 300 = 3600$ - MW of the PPG section of the block copolymer, "7" PEG in the copolymer is 70 wt%, and nominal molecular weight is 12,600) from BASF (3.0 g) was dissolved in 3.0 g acrylic acid (Aldrich). This represents a substantially 1:1 weight ratio of Pluronic®
- 25 F127 polyol and poly(acrylic acid). The solution was deaerated by N_2 bubbling for 0.5 h and following addition of 100 ml of freshly prepared saturated solution of ammonium persulfate (Kodak) in deionized water was kept at 70°C for 16 h resulting in a transparent polymer.
- 30 Viscosity measurements. A known amount of the resultant polymer was suspended in 100 ml deionized water into which NaOH was added. Following swelling

for 3 days while stirring, the pH of the resulting fine suspension was adjusted to 7. Samples of 15 ml each were taken, and pH in each vial was adjusted to desired value by addition of 1 M HCl or NaOH. Samples were then kept overnight and their viscosities were measured at different temperatures using Brookfield viscometer using either an 5 SC4-18 or an SC4-25 spindle.

A control experiment was done with a physical blend of Pluronic® F127 polyol and poly(acrylic acid) (MW 450,000) available from Aldrich. Pluronic® F127 polyol and poly(acrylic acid) were dissolved together in deionized water at 1 wt% total polymer concentration and the resultant solution was adjusted to pH 7, stirred and kept 10 in refrigerator. The responsiveness of the polymer network composition and the physical blend to temperature and pH is illustrated in figs. 1, 11, and 12. Figs. 1 and 2 clearly demonstrate that the synthetic route outlined above resulted in a polymer 15 network system that is sensitive to pH and temperature of the environment. Note that the liquid-gel transition is very sharp, occurring over a very small temperature change of pH (see Figure 11). Figure 12 is a viscosity vs. temperature graph comparing the gelling characteristics of the responsive polymer network composition and the physical blend. The blend prepared by physically mixing the triblock PEG/PPG/PEG polymer 20 and poly(acrylic acid) did not exhibit viscosifying effect either as a function of temperature or pH.

It was generally observed that 0.5 - 5 wt% polymer network compositions made 20 of Pluronic® F127 polyol and poly(acrylic acid) viscosify at temperatures of around 30°C and higher if pH is adjusted to 6 or higher. The gelling effect was observed in polymer network compositions standing 3 months or longer. Repeated heating and cooling of responsive polymer network compositions did not cause deterioration of the 25 polymer network or the gelling effect. Solutions of either Pluronic® F127 polyol or poly(acrylic acid) (1-5 wt% in water, adjusted to pH 6 or higher) or physical blends of the two lacked the reverse thermal gelling effects found for polymer network compositions.

Example 2. this example describes a standard operating procedure for the 30 manufacture of the reversible gelling polymer network.

The procedure is based upon a 50 liter production. A NaOH solution was prepared by dissolving 131.8 g NaOH pellets in 131.8 mL DI water (50% solution). The NaOH was allowed to dissolve completely. The NaOH solution will be used to convert a percentage of the acrylic acid to sodium acrylate in situ. Acrylic acid monomer (4 kg) is charged into a monomer feed tank and agitated at 250 rpm. NaOH is added slowly. The precipitate formed as the acrylic acid is neutralized to sodium acrylate is allowed to dissolve. Pluronic® F 127 (3.5 kg) is slowly added to the monomer feed tank. Pluronic® F127 is dissolved under continued agitation. Norpar 12 (a refined C-12 alkane) is added to the reaction vessel (37 L). The mixture is agitated at 100 rpm. Stabilizer solution of Ganex V-126 is prepared in 2L Norpar 12 and added to the reactor under agitation.

A reaction vessel was degassed using a nitrogen sparge introduced from the bottom of reactor and was continued throughout the reaction. Initiator (13.63 g Lauryl peroxide and 4.23 g Vazo 52 in 0.7 kg acrylic acid monomer) is introduced into the monomer solution. the monomer solution was transferred to the reaction vessel. Agitation was increased to 150 rpm. Nitrogen sparging continued for an additional 20 minutes, and then heating began. heating began at a rate of 0.5 -1.0°C/min up to 75°C. The reaction began to exotherm at about 45-50°C and is allowed to continue without cooling until a maximum is reached. It is then cooled to 75°C using forced cooling. The reaction continued for 12 hours and was then cooled to 35°C. The slurry was transferred into pails and the polymer beads were allowed to settle.

The slurry was filtered through Buchner Funnels with filter paper (11 µm pore size) until the bulk of the Norpar had been removed from the beads. The beads were washed three times with heptane. The filtered beads were transferred to a Pyrex drying tray and spread on the tray in a uniform layer. The beads were dried under vacuum for 4 hours at 40-50°C. The dried beads were analyzed as follows.

Elemental analysis. The elemental analysis was performed by Quantitative Technologies, Inc., Whitehouse, NJ using a Perkin Elmer 2400 CHN Elemental Analyzer. Analysis provided C (52.49%), H (7.50%), N (<0.05%), the balance assumed to be oxygen (39.96%).

Thermal Gravimetric Analysis (TGA). The TGA method was performed by Massachusetts Material Research, Inc., West Boylston, MA using a Dupont TGA model 295. The assay was run using a temperature ramp from 30 to 500°C/min. The resolution for the system was set to 4 (1.0°C/min for all slope changes). The data was 5 analyzed using the first derivative of the curve and using maxima and minima to mark transitions. The moisture content was also calculated in this manner. The first derivative yielded three maxima. The first transition (moisture) was 3.0% by weight, the second transition was 14.0% by weight, and the third was 67.02% by weight. Residue (15.98%) remained.

10 Molecular weight determination by gel permeation chromatography (GPC). The molecular weight was determined by GPC on a Hewlet Packard 1100 Liquid Chromatography system with a Viscotech T60 Triple Detector system. Three Waters Ultrahydrogel columns, 1000, 500 and 250 Å, were used for the separation. The mobile phase was 0.1 M NaNO₃ and 0.01 M K₂HPO₄ salt solution, pH adjusted with 15. phosphoric acid to a pH of 8.0 ± 0.1. the flow rate for the separation was 0.9 mL/min. The column temperature was maintained at 15°C. The injection volume for the assay was 50 µL. A PEG molecular weight standard of 23,000 Daltons was used to align the detectors. The result for the assay were:

20 M_n : 341,700 Daltons
 M_p : 1,607,000 Daltons
 M_w : 2,996,000 Daltons

25 Free poloxamer determination by GPC. The amount of free (unbound) poloxamer in the polymer matrix was determined using the above GPC method and comparing the poloxamer peaks to that of a standard poloxamer solution. The typical result is approximately 18-22% free poloxamer by weight.

30 The effect of both the bonded and non-bonded poloxamer on the gelation properties of the responsive polymer network has been determined by extraction of the non-bonded poloxamer from the material. Such extraction studies have established that the graft co-polymer alone exhibits the characteristic reverse thermal gelation of the composition; however, the presence of non-bonded poloxamer component modulates

the gelation process. The non-bonded poloxamer component can affect the temperature of transition (from liquid to gel) and the degree of transition and assists in a more controlled and reproducible transition.

Bound poloxamer determination by ethylene oxide (EO) titration. The EO titration was performed as follows. A 5 gm sample of the product polymer was extracted in dichloroethane for three hours at reflux temperatures. The solid is removed and dried under a vacuum for 12 hours at room temperature. The dry material is then analyzed using ASTM method D 2959-95, "Standard Test Method for Ethylene Oxide Content". The amount of EO in the sample is related to the amount of poloxamer bound to the polymer. The typical result is approximately 15% by weight of EO.

The relative amount of free poloxamer may be varied dependent upon the relative proportions of starting materials and the method of polymerization. Although the residual solids presumably contain only poloxamer which is bounded to the poly(acrylic acid), i.e., a graft co-polymer, the material still shows strong viscosification when it is neutralized and dissolved in water. However, the temperature of viscosification is increased substantially and the degree of viscosification per gram of total solids is increased by removal of free poloxamer. Thus, the free poloxamer plays a role in modifying the extent and temperature of viscosification. The poloxamer undergoes conformational changes and changes to the critical micelle concentration as a function of temperature. The poloxamer will change from an open, non-aggregated form to a micellar, aggregated form with changes in temperature.

Residual acrylic monomer determination by gas chromatography (GC). The residual acrylic acid monomer was determined by GC analysis using a Hewlet Packard GC 5890A, using a HP-FFDAP-TPA 10 m x 0.52 mm x 1 μm column. The sample was extracted and run in methanol. Using an internal standard ratio, the sample was compared to a one point calibration. The typical results for this assay were below 70 ppm acrylic acid monomer.

Residual Norpar solvent by GC. The residual Norpar in the sample was determined by GC using the above method and comparing the Norpar peaks to that of a standard. The typical results were below 1.5 wt%.

UV-vis spectrum. Optical clarity data of UV-vis spectrophotometer was obtained. A 1.0% solution in water was prepared and measured at 420 nm. Transmittance (%) was typically greater than 90%.

- Differential scanning calorimetry (DSC). The DSC was performed by 5 Massachusetts Material Research, Inc., West Boylston, MA using a temperature ramp from 30 to 350°C at 5°C/min. The resolution for the system was set to 4 (1.0°C/min for all slope changes). The assay yielded one endothermic event at 265°C, typically 270 J/g.

- Examples 3-9. These examples describe the synthesis of several reversible 10 thermal gelling polymer networks prepared using a variety of poloxamers and poly(acrylic acid). The gelation and the physical properties of the resultant polymer network compositions are reported in Table 2.

Table 2

Example	Poloxamer	Poloxamer Composition	Poloxamer: PAA	Trans. Temp.	Comments
3	Pluronic® F88 Prill polyol	2400 MW PPG; 80 wt% PEG; nominal MW 11,400	1:1	48°C	viscosity response curve shown in Figure 13
4	Pluronic® F127 NF polyol	3600 MW PPG; 70 wt% PEG; nominal MW 12,600	1:1	30°C	pentaerythritol triallyl ether crosslink agent used
5	Pluronic® P104 polyol	3000 MW PPG; 40 wt% PEG; nominal MW 5,900	1:1	28°C	viscosity response curve shown in Figure 14
6	Pluronic® P123 polyol	3600 MW PPG; 30 wt% PEG; nominal MW 5,750	1:1	25°C	viscosity response curve shown in Figure 15
7	Pluronic® F127/ Pluronic® F108 polyol blend (1:1)	as above	1:1.7	42°C	polymer solid formed, dried; resolubilized in neutralizing solution
8	Pluronic® F88 polyol	as above	1:1.7	80°C	polymer solid formed, dried; resolubilizing in neutralizing solution

9	Pluronic® F127/ Pluronic® F88 polyol blend (1:1)	as above	1:1.7	85°C	polymer solid formed, dried; resolubilizing in neutralizing solution
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Example 10. The following example demonstrates the effect of hydrophilic/hydrophobic ratio on the gelling temperature. Polymer network 5 compositions were prepared from the following poloxamers shown in Table 3.

Table 3. Composition of Poloxamers Investigated.

	triblock polyol polymer composition	MW of PPG block	wt % of PEG block
10	P103 (PEG) ₃₇ (PPG) ₅₆ (PEG) ₃₇	3250	50
	P104 (PEG) ₂₅ (PPG) ₅₆ (PEG) ₂₅	3250	40
15	P105 (PEG) ₁₆ (PPG) ₅₆ (PEG) ₁₆	3250	30

Table 3 shows that in this series, the fraction of PEG is reduced when the molecular weight of the PPG block is kept constant. Linse (*Macromol.* **26**:4437-4449 (1993)) report phase diagrams for these copolymers in water were calculated and it was 20 shown that two-phase boundaries corresponding to the beginning of aggregation are almost unaffected by the molecular mass, given a constant PEG/PPG ratio, whereas these boundaries shifted to lower temperature as the PEG content of the polymer is reduced at constant mass. The strong dependence of the PEG/PPG ratio is a consequence of the differing solubilities of PEG and PPG in water at the elevated 25 temperatures. Thus, one would suppose that aggregation that causes viscosification in the responsive polymer network composition should shift to lower temperature as PEG fraction decreases.

The poloxamer (3.0 g) was dissolved in 3.0 g acrylic acid. The solution was deaerated by N₂ bubbling for 20 min. and following addition of the 100:1 of freshly 30 prepared saturated solution of ammonium persulfate in deionized water was kept at 70°C for 16 h resulting in a strong whitish polymer. A sample of the polymer obtained

(0.4 g) was suspended in 40 ml deionized water into which NaOH was added. Suspended responsive polymer network particles were allowed to dissolve under constant stirring. The resulting 1 wt% polymer network solution were subjected to the viscosity measurement at shear rate of 132 or 13.2 sec⁻¹ using a SC4-18 spindle. It can 5 be seen from Figure 16 that, firstly, viscosity of the 1 wt% responsive polymer network solutions before viscosification (at 20-24°C) decreases in the series (PEG)₃₇(PPG)₅₆(PEG)₃₇(F103) > (PEG)₂₅(PPG)₅₆(PEG)₂₅(F104) > (PEG)₁₆(PPG)₅₆(PEG)₁₆(F105) and, secondly, the temperature at which gelation shifts 10 from about 45°C for (PEG)₃₇(PPG)₅₆(PEG)₃₇ to about 35°C for (PEG)₂₅(PPG)₅₆(PEG)₂₅ and (PEG)₁₆(PPG)₅₆(PEG)₁₆. Both results are in excellent agreement with the theory set forth in Linse.

15 Example 11. The following example is related to release of an active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of the protein hemoglobin from poloxamer:poly(acrylic acid) polymer network is described.

Synthesis. Pluronic® F127 (3.0 g) was dissolved in 3.0 g acrylic acid. The solution was deaerated by N₂ bubbling for 0.5 h and following addition of 100 Fl of freshly prepared saturated solution of ammonium persulfate (Kodak) in deionized water was kept at 70°C for 16 h resulting in a transparent polymer. The resultant responsive 20 polymer network obtained (5 g) was suspended in 95 ml deionized water into which NaOH was added. The resulting suspension was allowed to swell for 7 days.

Hemoglobin loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 0.25 mg/ml solution of human hemoglobin (Sigma) in deionized water adjusted to pH 8. The resulting mixture 25 was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (#2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the 30 hemoglobin-loaded responsive polymer network and 6 ml of phosphate-buffered saline

(pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 0.25 mg/ml hemoglobin solution. After the feed solution had been loaded into the cell, the kinetic time commenced. Samples of the receiver phase was withdrawn from time to time and their absorbance was measured spectrophotometrically at 400 nm. To calculate hemoglobin concentrations, corresponding calibration curves (absorbance in PBS versus hemoglobin concentration) were generated. The results of the kinetic experiment are presented in Figure 17. It can be seen that the rate of hemoglobin release from the polymer network was substantially lowered at 37°C when compared to that at 25°C, because of viscosity increase in the polymer network at elevated temperatures (see Figure 1). The protein released from the polymer network composition still retained its native structure, as was determined by comparison of UV-vis spectra of release hemoglobin and natural hemoglobin.

Example 12. The following example is related to release of an active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of the protein lysozyme from a polymer network is reported.

Lysozyme loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 1 mg/ml solution of chicken egg-white lysozyme (Sigma) and 1.5 mg/ml sodium dodecyl sulfate (Aldrich) in deionized water adjusted to pH 8.5. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (#2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the lysozyme-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 1 mg/ml lysozyme solution. After the feed solution had been loaded into the cell, the kinetic time commenced. Samples were withdrawn and their absorbance measured spectrophotometrically at 280 nm. A calibration curve was prepared for lysozyme concentration ranging from 0 mg/ml to 0.5 mg/ml in phosphate buffered saline. The results of the kinetic experiment

are presented in Figure 18. It can be seen that the rate of lysozyme release from the responsive polymer network composition was substantially lowered at 37°C when compared to that at 25°C, because of viscosity increase in responsive polymer network at elevated temperatures (see Figure 1).

5 In order to demonstrate the retention of the enzymatic activity of lysozyme, the lysozyme released from the responsive polymer network composition was assayed using *Micrococcus lysodeikticus* cells and compared to that of original lysozyme. The enzymatic activity of lysozyme was the same, within the error of the assay (15%), as that of the original lysozyme. Control without lysozyme in presence of sodium dodecyl sulfate did not show any appreciable lysis of the cells.

10 Example 13. The following example is related to release of an active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of insulin from a responsive polymer network composition is reported.

15 Insulin loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 15 h in 10 ml of 5 mg/ml solution of bovine Zn²⁺-insulin (Sigma) in deionized water adjusted to pH 7. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (#2063). The receiver chamber was continuously stirred by 20 a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the insulin-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 5 mg/ml insulin solution. After the feed solution had been loaded into the cell, the timing commenced. Samples were 25 withdrawn and their absorbance was measured spectrophotometrically at 280 nm. A calibration curve was prepared for insulin concentration ranging from 0 mg/ml to 1.25 mg/ml in phosphate buffered saline. The results of the kinetic experiment are presented in Figure 19. The rate of insulin release from responsive polymer network was substantially lowered at 37°C when compared to that at 25°C, because of viscosity 30 increase in responsive polymer network at elevated temperatures (see Figure 1).

Example 14. This example demonstrates the preparation of a sterile reversibly gelling polymer network aqueous composition and the stability of the composition to sterilization. The polymer network is prepared as described in Example 1, except that the composition is prepared at 2 wt% Pluronic® F127 polyol/poly(acrylic acid). After 5 dissolution of the 2 wt% polymer network in water, the viscosity is measured. The composition then is sterilized by autoclaving at 121°C, 16 psi for 30 minutes. Viscosity is determined after sterilization. The corresponding curves for viscosity (a) before and (b) after sterilization are shown in Figure 20 and establish that minimal change in the viscosity profile of the material has occurred with sterilization.

10 Examples 15-30. These examples show additives which may be used to affect the transition temperature overall viscosification of the polymer network composition. A 1 wt% polymer network was prepared in deionized water at pH 7 in which a variety of additives were included in the composition. The effect of the additive was determined by generation of a Brookfield viscosification curve. Results are reported in 15 Table 4.

Table 4.

Example No.	Additive (wt%)	Effect of additive on:	
		Transition Temp. (°C)	Final Viscosity (% change)
20	15 1,2-methyl pyrrolidone (5)	I (1.8)	N
	16 Rhodapex CO-436 (2)	I (1.6)	N
	17 Dow Corning 190 (2)	I (5)	I (150)
	18 isopropyl alcohol (0.5)	I (3.1)	I (45)
	19 Pluronic® L122 (1)	D (4.4)	D (13)
	20 Pluronic® F88 (1)	N	I (41)
	21 Tween 80 (0.5)	N	I (18)
	22 Germaben® II (1)	D (9)	I (100)
	23 Iconol NP-6 (1)	D (9)	I (500)
	24 Plurafac C-17 (0.5)	I (5.2)	D (36)
25	25 Dow Corning 193 (0.75)	I (4.1)	D (12)

5

Example No.	Additive (wt%)	Effect of additive on:	
		Transition Temp. (°C)	Final Viscosity (% change)
26	glycerin (5)	D (2)	N-
27	UC 50-HB 170/EO/PO random copolymer (0.5)	N	N
28	PVP K15 (1)	N	N
29	MAPTAC (1)	N	D (8)
30	potassium chloride (0.25)	N	D (34)

I = increase; D = decrease; and N = no change

10 Example 31. Because of the surfactant nature of the polymer network composition coupled with the gelation effect of the polymer network composition, it is possible to prepare formulations which are 100% water-based, but which are lubricous and thick.

15 Formulations including a nonionic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

15

Table 5.

20

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Emulsifying Wax NF ¹	2.5
Mineral Oil	5.0

¹ Polowax available from Croda

25 Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added, water is added to 100% w/w and allowed to mix to homogeneity. This formulation contains a nonionic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

Formulations including a cationic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 6.

	Ingredient	% w/w
5	10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
10	Behentrimonium Methosulfate (and) Cetearyl alcohol ¹	2.5
15	Mineral Oil	5.0

¹Incroquat Behenyl TMS available from Croda

Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added and allowed to mix to homogeneity. This formulation contains a cationic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

Formulations including an anionic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 7.

	Ingredient	% w/w
20	10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
25	Cetearyl Phosphate (and) Cetearyl alcohol ¹	2.5
30	Mineral Oil	5.0

¹Crodafos CES available from Croda

Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added, water is added to 100% w/w and allowed to mix to homogeneity. This formulation contains an anionic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

Example 32. Acne Medication: An oil-free, clear, anti-acne treatment is made by combining the following ingredients utilizing conventional mixing techniques:

Table 8.

	Ingredient	% w/w
5	10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
	Glycerin USP	5.0
	Salicylic Acid	2.0
	DL-Panthenol	0.5
	Germaben® II ¹	0.1
	Disodium EDTA	0.2
10	USP Purified Water	72.2

¹Germaben® II available from Sutton Laboratories

15 To one vessel, equipped with a Lightnin' Mixer with a 3 blade paddle prop, the full amount of USP Purified Water to 100% w/w is added. While maintaining the temperature, with moderate to vigorous mixing, the formula amount of Disodium EDTA, Citric Acid, DL-Panthenol, Glycerin, Salicylic Acid, and Germaben® II is added. These materials are allowed to dissolve at 50°C. After dissolution, the vessel
20 is then cooled to 20°C. To another vessel, equipped with a high efficiency homogenizer, the formula amount of responsive polymer network is added. The responsive polymer network vessel is then cooled to 4°C. After cooling, while vigorously homogenizing, the contents of the first vessel is added to the second vessel, and allowed to mix to homogeneity.

25 The composition displays a flowable clear jelly appearance with excellent spreadability and absorption characteristics at room temperature, and after heating the formulation to 32°C, the composition thickens to a gel-like consistency.

30 Example 33. (a) Oil-free Moisturizer (formulation I): An oil-free, lubricous moisturizer was made by combining the following ingredients utilizing conventional mixing techniques:

Table 9.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Glycerin USP	5.0
PPG-2 Myristyl Ether Propionate	3.0
DL-Panthenol	0.5
Germaben® II ¹	0.1
Disodium EDTA	0.2
Citric Acid	0.01
USP Purified Water	71.19

¹Germaben® II available from Sutton Laboratories

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The viscosity vs. temperature curve is shown in Figure 21 and demonstrates that addition of adjuvants to the composition significantly enhances the responsive polymer network maximum viscosity (> 900.000 cps). The use of the poloxamer:poly(acrylic acid) polymer network in the formulation also imparts a unique viscosification effect after application to the skin, which is not evident in typical commercial O/W emulsion formulations (See Figure 21b).

(b) Oil-free Moisturizer (formulation II): An oil-free, lubricous moisturizer was made by combining the following ingredients utilizing conventional mixing techniques:

Table 10.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	20.0
Glycerin USP	5.0
Carbopol 980	1.0

Ingredient	% w/w
D-Panthenol, propylene glycol	1.0
Preservative	1.0
Hydrolyzed protein (and) hyaluronic acid	0.5
Sodium hydroxide	0.2
USP Purified Water	90

5 The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

10 15 Example 34. Sunscreen Lotion. An oil-free, lubricous sunscreen lotion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 11.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	2.0
Glycerin USP	8.0
Carbopol 980	1.0
Parsol MCX	7.0
Myristyl Ether Propionate	5.0
Preservative	1.0
Cyclomethicone	1.0
Sodium hydroxide	0.2
USP Purified Water	74

20 25 30 The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance

with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

- 5 Example 35. Facial mask. A face mask was made by combining the following ingredients utilizing conventional mixing techniques:

Table 12.

	Ingredient	% w/w
10	1:1 polymer network as prepared in Example 1	1.0
	Polyvinyl alcohol	6.0
	Polyvinylpyrrolidone (20%)	5.0
	D-panthenol, propylene glycol	1.25
	Propylene glycol	1.25
15	USP Purified Water	85.5

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance 20 with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

- 25 Example 36. Facial toner. A face mask was made by combining the following ingredients utilizing conventional mixing techniques:

Table 13.

	Ingredient	% w/w
30	1:1 polymer network as prepared in Example 1	0.01
	Hydroxyethyl cetyltrimonium phosphate	1.00
	PEG-40 hydrogenated castor oil	2.00

Ingredient	% w/w
D-pantenol, propylene glycol	0.50
Glycerin	2.00
Witch hazel extract	5.00
USP Purified Water	88.49

5

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room 10 temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

15 Example 36. Solubilization studies of model hydrophobic agents in the poloxamer:poly(acrylic acid) polymer network: estradiol and progesterone. This example is presented to demonstrate the solubilization of a hydrophobic agent in the polymeric network. Progesterone and estradiol were used as the hydrophobic agents in this model solubilization study.

Acrylic acid (99%), fluorescein (98%), β-estradiol (98%), and progesterone (98%) were all obtained from Aldrich and used as received. Pluronic® F127 NF was 20 obtained from BASF. Poly(oxyethylene-b-oxypropylene-b-oxyethylene)-g-poly(acrylic acid) copolymers (responsive polymer network) were synthesized by free-radical polymerization of acrylic acid in the presence of poloxamer as described above. The polymer network copolymers discussed here were composed of about 1:1 ratio of PAA to poloxamer. The rheological properties of polymer network were assessed using 25 LVDV-II+ and RVDV-II+ Brookfield viscometers. The microscopic light scattering of 21 nm poly(styrene) latex particles in deionized water and 1 wt% reversibly gelling polymer network was measured using He-Ne laser as described previously (see Matsuo, E.S., Orkisz, M., Sun, S.-T., Li, Y., Tanaka, T., Macromolecules, 1994, 27, 6791). The solubility of fluorescein and hormones in aqueous solutions was measured 30 by the equilibrium of excess solubilizate with the corresponding solution following

removal of undissolved species by centrifugation and filtration. Hydrophobic agents were assayed spectrophotometrically at 240 (progesterone) or 280 nm (estradiol), or by using 70/30 w/w H₂SO₄/MeOH (Tsilifonis-Chafetz reagent). In vitro hormone release studies were conducted using thermostated, vertical Franz cells. Spunbonded 5 polypropylene microfilters (micron retention, 15-20) were used as a membrane separating feed and receiver phases in Franz cells. The responsive polymer network, water, ethanol, and 20% PEG in water were observed to wet the membrane. The receiver solution consisted of 20 w% PEG in water (pH 7) and were stirred by magnetic bars. The feed phases composed of responsive polymer network were loaded 10 with either estradiol or progesterone. Each hormone was dissolved in ethanol and the resulting solution was added into the responsive polymer network.

Equilibrium solubility vs. temperature plots for estradiol and progesterone (partition coefficient octanol/water (P) 7200 and 5888, respectively), in aqueous solutions of Pluronic® F127 polyol and responsive polymer network are presented in 15 Figure 22. It can be seen that increasing temperature and concentration (C) of polymers in the solution raises the amount of the hormone dissolved. In Figure 22a, vertical lines represent critical micellar temperatures (CMT) for corresponding Pluronic® F127 polyol solutions. It is interesting to note that the slope of the solubility-temperature plots increased as temperature reached CMT, indicating that 20 solubilization in the Pluronic® solutions was predominantly due to the formation of micelles. Similar trend was observed in the responsive polymer network solutions. The S values in 5% aqueous solutions of branched PAA did not exceed 15 and 40 µg/mL at 60°C for estradiol and progesterone, respectively. The solubility values found for responsive polymer network were the same as S in parent Pluronic® solutions 25 of equivalent concentrations. Therefore, it may be suggested that solubilization behaviors of the responsive polymer network are governed by the properties of the poloxamer incorporated into it. Thermodynamic parameters of the solubilization process with responsive polymer network were calculated using the same approximations as in the micellar solubilization with Pluronic® polyols. See, Saito, Y., 30 Kondo, Y., Abe, M., Sato, T., Chem. Pharm. Bull., 1994, 42, 1348. Namely,

partition coefficient P was estimated from equilibrium solubilities of estradiol in responsive polymer network and water:

$$P = S_{SH}/S_w \quad (13)$$

by extrapolating the solubility plots of the steroid in Figure 22 to 100% responsive 5 polymer network. Using P values obtained from data in Figure 23, we calculated the standard free energy change (ΔG), standard enthalpy of solubilization (ΔH), and standard entropy of solubilization (ΔS) using the following expressions:

$$\Delta G = -RT\ln P; \Delta H = -R \Delta \ln P / \Delta(1/T); \Delta S = (\Delta H - \Delta G) / T \quad (14)$$

Thermodynamic parameters obtained along with P values are given in Table 14.
10 Apparent partition coefficients and thermodynamic parameters for solubilization of estradiol by responsive polymer network.

Table 14.

T, K	P = S_{SH}/S_w	ΔG kJ/mol	ΔH kJ/mol	ΔS J/mol
15	277	490	-14.3	4.72
	293	520	-15.2	
	310	660	-16.7	
	323	660	-17.4	
	333	660	-18.0	

Negative ΔG values indicate spontaneous solubilization at all temperatures, whereas positive ΔH shows that the solubilization was endothermic, similar to the solubilization of estriol, as well as indomethacin, by the poloxamer. Notably, ΔS of solubilization was always positive, suggesting that the more ordered water molecules surrounding hydrophobic estradiol molecules moved to the less ordered bulk phase 25 when the estradiol was transferred to the hydrophobic core of PPG segments in responsive polymer network. The aggregation of the PPG segments at elevated temperatures provides not only temporary cross-linking in the gel, but also a thermodynamically "friendly" environment for the hydrophobic drugs. Indeed, one can 30 express the free energy of formation of the aggregate core-water interface in responsive

polymer network as:

$$\Delta G = [\sigma P_w(1-\phi) + \sigma W_D \phi](4\pi R^2/n) \quad (15)$$

where σP_w and σW_D are the interfacial tensions between pure PPO polymer and water and between water and the drug, respectively; ϕ is the volume fraction of the drug
5 within the PPO core; R is the effective radius of the core; and n is the aggregation number.

Equation (3) shows that solubilization of a hydrophobic drug of high σW_D should increase the stability of the aggregate. The solubilization process was found to decrease the critical micellization concentration and substantially increase the micellar
10 core radius in Pluronic surfactants (Hurter, P.N., et al., "In Solubilization in Surfactant Aggregates", Christian, S.D., Ed., Marcel Dekker, New York, 1995). A similar trend is indicated by the lowering the onset of gelation of the responsive polymer network upon solubilization of fluorescein (LogP 2.1) (Figure 24). The solubilization of hydrophobic drugs by responsive polymer network, analogous to the micellar
15 solubilization of drugs by poloxamer, suggests that the responsive polymer network can be an effective vehicle in drug delivery.

Our in vitro study of hormone release from responsive polymer network shows an increase in the initial transport rate with either decreasing total polymer concentration in the formulation or decreasing temperature (Figure 25). These effects
20 are related to the changes in macroscopic viscosity of the responsive polymer network, which erodes more rapidly from the feed phase through the membrane into the receiver compartment as the viscosity decreases (Figure 26). The degree of the responsive polymer network erosion was measured by weighing hormone-loaded responsive polymer network before and after kinetic experiment.

25 Figure 27 shows that the relative amount of progesterone penetrating into the receiver phase decreased 4-fold with the increase of total polymer concentration, whereas the total relative amount of progesterone stayed almost constant as total polymer concentration in the responsive polymer network increased. This result shows the existence of two routes of transport of hydrophobic drugs in our model system.
30 Firstly, the drug incorporated into aggregates within the responsive polymer network

system can flow through the membrane along with the erosion of the responsive polymer network; secondly, the drug not associated with the responsive polymer network aggregates can diffuse out of the responsive polymer network in the feed phase. The second process should not be related to the viscosity of the responsive 5 polymer network. Indeed, the dynamic light scattering experiment shows no dramatic change of diffusivity of poly(styrene) latex particles in the responsive polymer network as temperature rises thereby increasing macroscopic viscosity more than 10-fold (Figure 28). This result indicates that the viscosity of the responsive polymer network is essentially unaffected on the microscopic scale.

10

Appendix A attached.

APPENDIX A
FUNCTION DEFINITIONS

	Abrasive: abrades, smoothes, polishes	Buffer: helps maintain original pH (acidity or basicity) of a preparation
5	Absorbent powder: takes up liquids, sponge-like action	Carrier: a vehicle or base used for a preparation
	Absorption base: forms water-in-oil emulsions	Chelate: form a complex with trace-metal impurities, usually calcium or iron
	Acidulent: acidifies, lowers pH, neutralizes alkalis	Colorant: adds color, may be a soluble dy or an insoluble pigment
10	Amphoteric: capable of reacting chemically either as an acid or a base; amphoteric surfactants are compatible with anionic and cationic surfactants	Conditioner: improves condition of skin and hair
	Analgesic: relieves pain	Coupling agent: aids in solubilization or emulsification of incompatible componenets
	Antacid: neutralizes stomach acidity	Decolorant: removes color by adsorption, bleaching or oxidaion
15	Antibacterial: destroys/inhibits the growth/ reproduction of bacteria	Denaturant: used to denature ethyl alcohol
	Anti-caking: prevents or retards caking of powders; keeps powders free-flowing	Dental powder: powdered dentifrice
	Anti-dandruff: retards or eliminates dandruff	Deodorant: destroys, masks, or inhibits formation of unpleasant odors
20	Antifoam: suppresses foam during mixing	Depilatory: removes hair chemically
	Anti-inflammatory: reduces, suppresses, counteracts inflamation	Detergent: a surface-active agent (surfactant) that cleans by emulsifying oils and suspends particulate soil
	Anti-irritant: reduces, suppresses or prevents irritation	Disinfectant: destroys pathogenic microorganisms
25	Antimicrobial: destroys, inhibits or suppresses the growth of microorganisms	Dispersant: promotes the formation and stabilization of a dispersion or suspension
	Antioxidant: inhibits oxidation and rancidity	Dye stabilizer: see Stabilizer
	Antiperspirant: reduces or inhibits perspiration	Emollient: softens, smoothes skin
	Antipruritic: reduces or prevents itching	Emulsifier: a surface-active agent (surfactant) that promotes the formation of water-in-oil or oil-in-water emulsions
30	Antiseptic: inhibits the growth of microorganisms on the skin or on living tissue	Enzymes: complex proteins produced by living cells that catalyze biochemical reactions at body temperature.
	Antistat: reduces static by neutralizing electrical charge on a surface	Fiber: strands of natural or synthetic polymers; for instance, cotton, wool, silk, nylon, polyester
35	Astringent: contracts organic tissue after application	Film former: solution of a polymer that forms films when the solvent evaporates after application to a surface
	Binder: promotes cohesion of powders	Fixative: fixes or sets perfumes; retards evaporation; promotes longer lasting aroma
	Bleaching agent: lightens color, oxidizing agent	
	Botanical: natural plant derivative	

	Flavor: imparts a characteristic taste (and aroma) to edible foods and drinks; sometimes used in lip products	Ointment base: an anhydrous mixture of oleaginous components used as a vehicle for medicaments
5	Foam booster: enhances quality and quantity of lather of shampoos	Opacifier: opacifies clear liquids or solids
	Foamer: a surface-active agent (surfactant) that produces foam; an emulsion of air-in-water	Oxidant: oxidizing agent, neutralizes reducing agents, bleaching agent
	Foam stabilizer: see Foam booster	Pearlant: imparts a pearlescent texture and luster
10	Fungicide: inhibits or destroys growth of fungi	Perfume solvent: see Solvent and Solubilizer
	Gellant: a gelling agent; forms gels; includes a wide variety of materials such as polymers, clays and soaps	Peroxide stabilizer: see Stabilizer
	Glosser: furnishes a surface luster or brightness; usually used in lip or hair products	Pigment: a finely powdered insoluble substance used to impart color, luster, or opacity
15	Hair colorant: see Colorant	Plasticizer: plasticizes (makes more flexible) polymeric films or fibers
	Hair conditioner: see Conditioner	Polish: smoothes; adds gloss and luster
	Hair dye: imparts a new permanent or semi-permanent color to hair	Polymer: a very high molecular weight compound consisting of repeating structural units
20	Hair-set polymer: polymer and/or resins used to maintain desired hair shape	Powder: a solid in the form of fine particles
	Hair-set resin: see Hair-set polymer	Preservative: protects products from spoilage by microorganisms
	Hair waving: see Reducing agent and Neutralizer	Propellant: pressurized gas in a container used to expel the contents when pressure is released by opening a valve
	Humectant: absorbs, holds, and retains moisture	
	Hydrotrope: enhances water solubility	Protein: naturally occurring complex combinations of amino acids
25	Intermediate: basic chemicals which are chemically modified to obtain the desired function	Reducing agent: reduces a chemical compound usually by donating electrons; neutralizes oxidizing agents
	Lathering agent: a surface active agent (surfactant) that forms a foam or lather on mixing with air in solution; see also Foamer	Refatting agent: adds oils materials to the surface of substrates, e.g., skin and hair
30	Lubricant: reduces friction, smoothes, adds slip	Resin: nonvolatile solid or semisolid organic substances obtained from plants as exudates to prepared by polymerization of simple molecules
	Moisture barrier: retards passage of moisture or water	Sequestrant: forms coordination complexes with multivalent positive ions
35	Moisturizer: aids in increasing the moisture content of the skin through humectant or barrier action	Silicone: polymeric organic silicon compounds which are water-resistant
	Neutralizer: an oxidizing agent used in hair waving that stops the action of the reducing agent and re-establishes the disulfide linkages in hair	Skin protectant: protects the skin from environmental
40	Oil absorbent: see Absorbent powder	Solubilizer: solubilizes, usually into aqueous vehicles, normally insoluble materials, such as fragrances, flavors, oils, etc.

- Solvent:** usually liquids capable of dissolving other substances
- Stabilizer:** added to stabilize emulsions and/or suspensions
- 5 **Stimulant:** produces a temporary increase in the functional activity of an organism or any of its parts
- 10 **Surfactant** (surface active agent): lowers surface tension between two or more incompatible phases; soaps, detergents, wetting agents, solubilizing agents and emulsifying agents are typical surfactants; surfactants are classified as anionic, cationic, nonionic and amphoteric; anionic surfactants are negatively charged, cationic surfactants have no electrical charge
- 15 **Suspending agent:** keeps finely divided solid particles in suspension
- 20 **Sweetener:** sweetens to provide a more pleasant taste
- 25 **Tanning accelerator:** accelerates the tanning of skin
- 30 **Thickener:** thickens or increases viscosity/consistency
- 35 **Thixotrope:** the property of certain gels and emulsions of becoming more fluid or less viscous when shaken or stirred
- UV absorber: used as a sunscreen and to protect preparations from degradation by UV radiation
- 30 **UVA absorber:** absorbs in the range 320-400 nanometers (nm)
- UVB absorber: absorbs in the range 290-320 nanometers (nm)
- 35 **Wax:** any of numerous substances of plant, animal or synthetic origin that contain principally esters of higher fatty acids and higher fatty alcohols; free fatty alcohols, fatty acids and hydrocarbons may also be present; waxes derived from petroleum products are mainly high-molecular-weight hydrocarbons
- 40 **Wetting agent:** a surface-active agent (surfactant) that lowers the surface and interfacial tension, facilitating the wetting of surfaces
- 45 **Wetting agent:** a surface-active agent (surfactant) that lowers the surface and interfacial tension, facilitating the wetting of surfaces

FUNCTIONS

	Abrasive	AHA
	Adzuki beans	Apple (<i>Pyrus malus</i>) extract
5	Almond (<i>Prunus amygdalus</i>) meal, shell granules	Apricot (<i>Prunus armeniaca</i>) kernel powder
	Aluminurn silicate	Citric acid
	Apricot (<i>Prunus armeniaca</i>) kernel powder, shells	Ethyl lactate
	Hydrated silica	Glycolic acid
	Jojoba (<i>Buxus chinensis</i>) seed powder	Lactic acid
10	Luffa <i>cylindrica</i>	Malic acid
	Olive stone granules	Sodium lactate
	Oyster shell powder	Tartaric acid
	Peach (<i>Prunus persica</i>) pit powder	
	Peach (<i>Prunus persica</i>) stone granules	
15	Polyethylene	Antiacne
	Polyethylene HEC granules	Clays (white, yellow, red, green, pink)
	Polyethylene oxidized, P. spheres	Perfluorodecalin
	Polystyrene	Salicylic acid
	Pumice	Sulfur
20	Rice (<i>Oryza sativa</i>) bran	
	Silica and S. colloidal	Anti-aging
	Sodium chloride	Basil (<i>Ocimum basilicum</i>) extract
	Walnut (<i>Juglans regia</i>) shell powder	Carrot (<i>Daucus carota</i>) extract
25	Absorption base	Catalpa <i>kaempfera</i> extract
	1,2,6-Hexanetriol	Ceramide 33 (liquid soy extract)
	Kaolin	Crataegus <i>cuneata</i> extract
	Petrolatum	Eugenia <i>jambolana</i> extract
	Rice (<i>Oryza sativa</i>) starch	Fomes <i>fomentarius</i> extract
30	Soy (<i>Glycine soja</i>) sterol	Fomistopsis <i>pinicola</i> extract
	Zeolite	Ganoderma <i>lucidum</i> oil
		Ginseng (<i>Panax ginseng</i>) extract
	Absorbent powder	Hyaluronic acid
	Corn (<i>Zea mays</i>) starch	Hydrolyzed serum protein
35	Maltodextrin	Hydrolyzed soy flour
	Nylon-12	Isachne <i>pulchella</i> extract
	Oat (<i>Avena sativa</i>) bran, flour, meal	Lactoferrin
	Zeolite	Lady's Thistle (<i>Silybum marianum</i>) extract
		Ligusticum <i>jeholense</i> extract
40	Acidulent	Marine collagen
	Acetic acid	Mushroom (<i>Coriolus versicolor</i>) extract
	Citric acid	Must rose (<i>Rosa moschata</i>) oil
	Fumaric acid	Perfluorodecalin
	Glutamic acid	Quaternium-51
45	Glycolic acid	Rubus <i>thunbergii</i> extract
	Hydrochloric acid	Serum protein
	Lactic acid	Stenocalyx <i>micalii</i> extract
	Nitric acid	Tricholoma <i>matsutake</i> extract
	Phosphoric acid	
50	Sodium bisulfate	Antibacterial
	Sulfuric acid	Ammonium iodide
	Tartaric acid	Chlorhexidine
		Chlorhexidine diacetate, C. digluconate
		Chlorhexidine dihydrochloride

	Chlorphenesin	Antidandruff
	Hexamidine diisethionate	Burdock (<i>Arctium lappa</i>) extract
	Hexetidine	Chloroxylenol
5	Iceland moss (<i>Cetraria islandica</i>) extract	Corydalis <i>ambigua</i> extract
	Lactoterrin	Disodium undecylenamido MEA-sulfosuccinate
	Lauralkonium bromide, L. chloride	Ginger root extract
	Laurtrimonium chloride	Inga <i>edulis</i> extract
	Laurylpypidinium chloride	Mauritiella <i>armata</i> extract
10	Mauritiella <i>armata</i> extract	Myristalkonium saccharinate
	Mushroom (<i>Cordyceps sibolifera</i>) extract	PEG-6 undecylenate
	Orange blossom extract	Piroctone olamine
	Orange (<i>Citrus aurantium dulcis</i>) peel extract	Resorcinol
	PEG-42 Ebiriko ceramides extract	Rosemary (<i>Rosmarinus officinalis</i>) extract
15	Peppermint (<i>Mentha piperita</i>) extract	Sodium shale oil sulfonate
	Philodendron (<i>Phelodendron amurense</i>) extract	Stenocalyx <i>micalii</i> extract
	Pine (<i>Pinus sylvestris</i>) needle extract	Undecylenamide DEA
	Polymethoxy bicyclic oxazolidine	Willow (<i>Salix alba</i>) bark extract
	Quaternium 73	Zinc pyrithione
20	Rubus <i>thunbergii</i> extract	
	Tea tree (<i>Melaleuca alternifolia</i>) oil	
	Triclocarban	
	Undecylenic acid	
	Anticaking	Antifungal
25	Aluminum starch octenylsuccinate	Black walnut (<i>Juglans nigra</i>) extract)
	Calcium stearate	Coneflower (<i>Echinacea angustifolia</i>) extract
	Distarch phosphate	Orange blossom extract
	Hydrated silica	Pfaffia <i>paniculata</i> extract
	Kaolin	
30	Magnesium myristate, M. silicate	Anti-inflammatory
	Polyethylene, micronized	Allantoin polygalacturonic acid
	Silica silylate	Bisabolol
	Sodium aluminum silicate	Black poplar (<i>Populus nigra</i>) extract
	Zinc stearate	Brassica <i>rapa-depressa</i> extract
35		Butcherbroom (<i>Ruscus aculeatus</i>) extract
	Anticaries agent	Calendula <i>officinalis</i> extract
	Cetylamine hydrofluoride	Catalpa <i>kaempfera</i> extract
	Olaflur	Celastrus <i>paniculata</i> extract
	Sodium fluoride	Ceramide 33 (liquid soy extract)
40	Stearyl trihydroxyethyl propylenediamine dihydrofluoride	Chaparral (<i>Larrea mexicana</i>) extract
		Coneflower (<i>Echinacea angustifolia</i>) extract
		Cornflower (<i>Centaurea cyanus</i>) extract
	Anticellulite	Dipotassium glycyrrhizinate
	Aminophylline	Eupatorium <i>fortunei</i> extract
45	Bladderwrack (<i>Fucus vesiculosus</i>) extract	Duphrasia <i>officinalis</i> extract
	Butcherbroom (<i>Ruscus aculeatus</i>) extract	Ficus <i>racemosa</i> extract
	Carcinia <i>cambogia</i> extract	Golden seal (<i>Hydrastis canadensis</i>) root extract
	Fomes fomentarius extract	Guaiaculene
	Fomitopsis <i>pinicola</i> extract	Horse chestnut (<i>Aesculia hippocastanum</i>) extract
	Ivy extract	Jujube (<i>Zizyphus jujuba</i>) extract
	Mushroom (<i>Coriolus versicolor</i>) extract	Laminaria <i>japonica</i> extract
	TEA-hydroiodide	Licorice (<i>glycyrrhiza glabra</i>) extract
50	Tricholoma matsutake extract	Ligisticum <i>jeholense</i> , L. <i>lucidum</i> extract
		Matricaria (<i>Chamomilla recutita</i>) extract
		Melaleuca <i>uncinata</i> extract
		Melia <i>azadirachta</i> extract

	Mulberry (<i>Morus nigra</i>) extract	PVP
	Niacinamide ascorbate	<i>Saccharomyces</i> lysate extract
	Orange (<i>Citrus aurantium dulcis</i>) peel extract	Sodium C12-15 pareth-15 sulfonate
	Orange blossom extract	Sodium lauroamphoacetate
5	Palmetto extract	Soy (<i>Glycine soja</i>) protein
	Palmitoyl collagen amino acids	Undecylenoyl collagen amino acids
	Passion flower (<i>Passiflora laurifolia</i>) fruit extract	Valerian (<i>Valeriana officinalis</i>) extract
	Paulownia <i>imperialis</i> extract	
	Alicyclic acid	
10	Shea butter (<i>Butyrospermum parkii</i>)	Antimicrobial
	Sodium carboxymethyl beta-glucan	Benzalkonium chloride
	soy (<i>Glycine soja</i>) protein	Benzoic acid
	Stearyl glycyrrhetinate	Benzyl alcohol
	Stenocalyx <i>micalii</i> extract	Bromochlorophene
15	Tocopheryl acetate, T. nicotinate	2-Bromo-2-nitropropane-1,3-diol
	Trichomonas <i>japonica</i> extract	Butylparaben
	Willow (<i>Salix alba</i>) extract	Capryloyl collagen amino acids
	Witch hazel (<i>Hamamelis virginiana</i>) extract	Capryloyl glycine, C. keratin amino acids
	Withania somnifera extract	Captan
20	Yarrow (<i>Achillea millefolium</i>) extract	Cetethyldimonium bromide
	Zinc lactate	Cetyl pyridinium chloride
		Chlorothymol
		Chloroxylenol
		Citron oil
		Copper PCA
25	Anti-irritant	Dichlorobenzyl alcohol
	Acetyl monoethanolamine	Dilauryldimonium chloride
	Allantoin	Domiphen bromide
	Allantoin acetyl methionine, A. glycyrrhetic acid	Ethylparaben
	Azelamide MEA	<i>Eucalyptus</i> (<i>Eucalyptus globulus</i>) extract
	Betaine	Fennel (<i>Foeniculum vulgare</i>) extract
30	Calendula <i>officinalis</i> extract	Garlic (<i>Allium sativum</i>) extract
	Cocamidopropyl betaine	Glyceryl caprylate, G. laurate
	Coceth-7 carboxylic acid	Hexamidine diisethionate
	Cornflower (<i>Centaurea cyanus</i>) extract	Hinokitiol
	Diisostearyl dimer dilinoleate	Honeysuckle (<i>Lonicera caprifolium</i>) extract
35	Dipalmitoyl cystine	Lichen (<i>Usnea barbata</i>) extract
	Green tea extract	Myristalkonium chloride
	Hydrolyzed sweet almond protein	Pentylene glycol
	Hydroxypropyltrimonium gleat	Phenethyl alcohol
	Lauroyl collagen amino acids	Phenol
40	1-Lysine lauroyl methionine	Phenoxyethanol
	Mallow extract	Phenoxyisopropanol
	Matricaria (<i>Chamomilla recutita</i>) extract	Phenyl mercuric acetate, P.m. benzoate, P.m. borate
	Palmitoyl hydrolyzed milk protein	o-Phenylphenol
	Palmitoyl hydrolyzed wheat protein	Polymethoxy bicyclic oxazolidine
45	Palmitoyl keratin amino acids	Potassium sorbat
	PEG-12 palm kernel glycerides	Propylparaben
	PEG-28 glyceryl tailowate	Ricinoleamodopropyltrimonium ethosulfate
	PEG-30 glyceryl monococoate	Sage (<i>Salvia officinalis</i>) extract
	PEG-60 almond glycerides	Sodium benzoate, S. pyrithione
50	PEG-78 glyceryl cocoate	Sodium ricinoleate, S. shale oil sulfonate
	PEG-82 glyceryl tailowate	Thimerosal
	PEG-200 glyceryl tailowate	
	Propionyl collagen amino acids	

	Thyme (<i>Thymus vulgaris</i>) extract	Tocopheryl acetate, T. linoleate
	Thymol	Wild marjoram (<i>Origanum vulgare</i>) extract
	Triclocarban	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)
5	Triclosan	
	Undecylenamidopropyltrimonium methosulfate	Antiperspirant
	Undecylenic acid	Allantoin-aluminum chloride
	Zinc oxide, Z. PCA	Aluminum capryloyl hydrolyzed collagen
	Zinc pyrithione, Z. undecylenate	Aluminum chlorhydrrex-gly, A. chloride
10	Antioxidant	Aluminum chlorhydrate, A. chlorhydrrex
	Ascorbic acid	Aluminum PCA, A. sesquichlorohydrate
	A. polypeptide	Aluminum undecylenoyl collagen amino acids
	Ascorbyl oleate, A. palmitate	Aluminum zirconium pentachlorhydrate
	Beta-carotene	Aluminum zirconium tetrachlorohydrate
15	BHA	Aluminum zirconium tetrachlorhydrrex GLY
	BHT	Aluminum zirconium trichlorohydrate
	t-Butyl hydroquinone	Aluminum-zirconium-glycine powder
	Dilauryl thiodipropionate	Sage (<i>Salvia officinalis</i>) extract
	Dimyristyl thiodipropionate	Tormentil (<i>Potentilla erecta</i>) extract
20	Disodium EDTA	Zirconium chlorhydrate
	Distearyl thiodipropionate	
	Dodecyl gallate	Antiseptic
	EDTA	Aluminum PCA
	Erythorbic acid	Azadirachta indica extract
25	Ferulic acid	2-Bromo-2-nitropropane-1,3-diol
	Grape (<i>Vitis vinifera</i>) seed extract	Calendula amurrensis extract
	Green tea extract	p-Chloro-m-cresol
	HEDTA	Clove (<i>Eugenia caryophyllus</i>) oil
	Hydroquinone	Crataegus cuneata extract
30	Hydroquinone-beta-D-glucopyranoside	Dichlorobenzyl alcohol
	p-Hydroxyanisole	Entada phaseoloides extract
	Lactoferrin	Eucalyptus (<i>Eucalyptus globulus</i>) extract
	Lysine PCA	Golden seal (<i>Hydrastis canadensis</i>) root extract
	Melanin	Hexachlorophene
35	Methyl gallate	Melia australasica, M. azadirachta extract
	Niacinamide ascorbate	Methyl salicylate
	Nordihydroguaiaretic acid	Orange (<i>Citrus aurantium dulcis</i>) peel extract
	Oat (<i>Avena sativa</i>) extract	Oxyquinoline sulfate
	Oryzanol	Pfaffia paniculata extract
40	Pentasodium pentetate	Potassium abietoyl hydrolyzed collagen
	Pentetic acid	PVP-iodine
	Propyl gallate	Silver nitrate
	Retinyl palmitate polypeptide	Sodium salicylate
	Rosemary (<i>Rosmarinus officinalis</i>) extract	Sterculia platanifolia extract
45	Saccharomyces lysate extract	Tea tree (<i>Melaleuca alternifolia</i>) oil
	Sage (<i>Salvia officinalis</i>) extract	Tormentil (<i>Potentilla erecta</i>) extract
	Sodium ascorbate, S. erythorbate	Xanthozylum bungeanum extract
	Sodium metabisulfite	
	Sodium selenate, S. sulfite	Antistat
50	Superoxide dismutase,	Acetamide MEA
	Tea (<i>Camellia sinensis</i>) extract	Acetamidopropyl trimonium chloride
	Tetrasodium EDTA	6-(N-Acetylamo)-4-oxyhexyltrimonium chloride
	Tocopherol	Alkyl dimethyl betaine

	Babassuamidopropalkonium chloride	Soyethyldimonium ethosulfate
	Behenamidopropyl ethyldimonium ethosulfate	Stearalkonium chloride
	Behenamidopropyl hydroxyethyl dimonium chloride	Stearamidopropyl benzyl dimonium chloride
5	Carboxymethyl chitin	Stearamidopropyl ethyldimonium ethosulfate
	Cetethyl morpholinium ethosulfate	Steartrimonium chloride
	Cetrimonium chloride	N-Stearyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate
	Chitin	Wheat germamidopropylethyldimonium ethosulfate
	Chitosan	
10	Cocamidopropyl ethyldimonium ethosulfate	Astringent
	Cocodimonium hydroxypropyl hydrolyzed rice protein	Aluminum citrate, A. lactate
	Cocodimonium hydroxypropyl hydrolyzed soy protein	Astragalus sinicus extract
15	Dimethicone hydroxypropyl trimonium chloride	Astrocaryum murumuru, A. tucuma extract
	dimethyl behenamine, D. cocamine	Azadirachta indica extract
	Dimethyl palmitamine, D. soyamine	Azelamide MEA
	Dimethyl tailowamine	Bearberry (<i>Arctostaphylos uva-ursi</i>) extract
	Dioleylamidoethyl hydroxyethylmonium methosulfate	Birch (<i>Betula alba</i>) leaf extract
20	Dipalmitoylethyl hydroxyethylmonium methosulfate	Catalpa kaempfera extract
	N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride	Celastrus paniculata extract
25	Erucamidopropyl hydroxysultaine	Coccinea indica extract
	Glyceryl monopyroglutamate	Coffee (<i>Coffea arabica</i>) bean extract
	Hydrogenated tailowamine oxide	Euphrasia officinalis extract
	Isostearea propyl dimethylamine	Euterpe precatoria extract
	Lactamidopropyl trimonium chloride	Evening primrose (<i>Oenothera biennis</i>) extract
30	Lauryldimonium hydroxypropyl hydrolyzed collagen	Gentian (<i>Gentiana lutea</i>) extract
	Linoleamidopropyl dimethylamine dimer dilinoleate	Geranium maculatum extract
	Olealkonium chloride	Grape (<i>Vitis vinifera</i>) leaf extract
35	PEG-2 cocamine	Henna (<i>Lawsonia inermis</i>) extract
	PEG-2 cocomonium chloride	Hierochloe odorata extract
	PEG-2 oleammonium chloride	Honeysuckle (<i>Lonicera caprifolium</i>) extract
	PEG-8 caprylic/capric glycerides	Hops (<i>Humulus lupulus</i>) extract
40	PEG-10 cocamine	Horesetail extract
	PEG-15 soyamine	Hypericum perforatum extract
	PPG-9 diethylmonium chloride	Ivy extract
	PPG-25 diethylmonium chloride	Juniperus communis extract
	PPG-40 diethylmonium chloride	Kadsura heteroclita extract
	Propylene glycol stearate	Kola (<i>Cola acuminata</i>) extract
45	Quaternium-26, -27, -53, -62, -72	Lady's mantle (<i>Alchemilla vulgaris</i>) extract
	Rapeseedamidopropyl benzylidomonium chloride	Lemon (<i>Citrus medica limonum</i>) extract, peel extract
	Rapeseedamidopropyl epoxypropyl dimonium chloride	Lemon bioflauonoids extract
	Silica, colloidal	Lysimachia foenum-graecum extract
50	Sorbitan caprylate	Magnolia spp. extract
	N-Soya-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Mauritia flexosa extract
	Soyethyl morpholinium ethosulfate	Maximilliana regia extract

	Plantain (<i>Plantago major</i>) extract	<u>Biol. polymer</u>
	Polygonum multiflorum extract	Distarch phosphate
	Pterocarpus marsupianus extract	Dog rose (<i>Rosa canina</i>) see extract
5	Raspberry (<i>Rubus</i>) extract	Hydrogen peroxide
	Sambucus nigra oil	Kojic acid
	Sanguisorbae root extract	Mulberry (<i>Morus nigra</i>) extract
	Selinum spp. extract	Sanguisorbae root extract
	Shorea robusta extract	
10	Tannic acid	<u>Botanical</u>
	Walnut (<i>Juglans regia</i>) leaf extract, oil	Acacia
	Wheat (<i>Triticum vulgare</i>) protein	Acacia farnesiana extract
	White nettle (<i>Lamium album</i>) extract	Agrimony (<i>Agrimonia eupatoria</i>) extract
	Witch hazel (<i>Hamamelis virginiana</i>) extract	Alder (<i>Alnus firma</i>) extract
15	Xanthozylum bungeanum extract	Alfalfa (<i>Medicago sativa</i>) extract
	Zinc lactate	Algae (<i>Ascophyllum nodosum</i>) extract
	Ziziphus jujuba extract	Algae (<i>Lithotamnium calcarm</i>) extract
		Aloe barbadensis, A.b. extract
		Aloe capensis extract
		Alpine Veronica extract
20	<u>Binder</u>	Althea officinalis extract
	Aluminum starch octenylsuccinate	Angelica archangelica extract
	Boron nitride	Anise (<i>Pimpinella anisum</i>) extract
	C20-40, C30-50, C40-60 alcohols	Apple (<i>Pyrus malus</i>) extract
	Calcium stearate	Apricot (<i>Prunus armeniaca</i>) extract
	Cellulose gum	Arnica montana extract
	Dihydroabietyl behenate	Artemisia capillaris extract
25	Diisostearyl malate	Artichoke (<i>Cynara scolymus</i>) extract
	diocetyl sebacate	Asafetida (<i>Ferula assa foetida</i>) extract
	Distarch phosphate	Asiasarum _____ extract
	ethylcellulose	Asparagus officinalis extract
	Gellan gum	Astragalus sinicus extract
30	Hydrogenated jojoba oil	Avens (<i>Geum rivale</i>) extract
	Isocetyl alcohol, I. palmitate	Avocado (<i>persea gratissima</i>) extract
	Isopropyl isostearate	Balm mint (<i>Melissa officinalis</i>) extract, oil extract
	Isostearyl erucate, I. isostearate	Vanana (<i>Musa sapientum</i>) extract
	Isostearyl neopentanoate	Barley (<i>Hordeum vulgare</i>) extract
35	Maltodextrin	Basil (<i>Ocimum basilicum</i>) extract
	Methylcellulose	Bearberry (<i>Arctostaphylos uvaUrsi</i>) extract
	Microcrystalline cellulose	Bee pollen extract
	Octyl palmitate	Beet (<i>Beta vulgaris</i>) extract
	Octyldodecyl myristate	Betaglucan
40	bis-Octyldodecyl stearoyl dimer dilinoleate	Bilberry (<i>Vaccinium myrtillus</i>) extract
	Octyldodecyl stearoyl stearate	Bioflavonoids
	Oleyl oleate	Birch (<i>Betula alba</i>) bark extract, leaf extract
	PEG-20, -75, -150, -240, -350	Birch (<i>Betula platyphylla</i>) japonica(extract
	Polydipentene	Bitter orange (<i>Citrus aurantium amara</i>) extract.
45	Polyethylene; P. micronized	flower extract, peel extract
	PTFE	Black cohosh (<i>Cimicifuga racemosa</i>) extract
	PVP	Black currant (<i>Ribes nigrum</i>) extract
	Sorbitol	Black henna extract
	Synthetic wax	Black poplar (<i>Populus nigra</i>) extract
50	Tapioca dextrin	Black walnut (<i>Juglans nigra</i>) extract
	Tridecyl benenate, T. neopentanoate	Bladderwrack (<i>Fucus vesiculosus</i>) extract
	Tridecyl stearoyl stearate	
	Trisodium HEDTA	

	Houttuynia cordata extract	Neroli extract
	Hyacinth (<i>Hyacinthus orientalis</i>) extract	nettle (<i>Urtica dioica</i>) extract
	Hydrocotyl (<i>Centella asiatica</i>) extract	Oak (<i>Quercus</i>) bark extract
5	Hydrolyzed oat protein, soy flour	Oak root extract
	Hypericum perforatum extract	Oat (<i>Avena sativa</i>) bran, bran extract, flour, protein
	Hyssop (<i>Hyssopus officinalis</i>) extract	Oat flower
	Indian cress (<i>Tropaeolum majus</i>) extract	Olive (<i>Olea europaea</i>) extract, leaf extract
	Isodonis Japonicus extract	Onion (<i>Allium cepa</i>) extract
	Ivy extract	Orange blossom extract
10	Japanese angelica (<i>Angelica acutiloba</i>) extract, water	Orange (<i>Citrus aurantium dulcis</i>) flower extract, peel extract
	Japanese hawthorn (<i>Crataegus cuneata</i>) extract	Pansy (<i>Viola tricolor</i>) extract
	Jasmine (<i>Jasminum officinale</i>) extract	Papaya (<i>Carica papaya</i>) extract
	Job's tears (<i>Coix lacryma-jobi</i>) extract	Parsley (<i>Carum petroselinum</i>) extract
15	Jojoba (<i>Buxus chinensis</i>) seed powder	Passion flower (<i>Passiflora laurifolia</i>) fruit extract
	Juniperus communis extract	Passionflower (<i>Passiflora incarnata</i>) extract
	Kelp (<i>Macrocystis pyrifera</i>) extract	Pea (<i>Pisum sativum</i>) extract
	Kiwi (<i>Actinidia chinensis</i>) fruit extract, seed oil	Peach (<i>Prunus persica</i>) extract, leaf extract
	Kola (<i>Cola acuminata</i>) extract	Pelargonium capitatum extract
20	Krameria triandra extract	Pellitory (<i>Parietaria officinalis</i>) extract
	Lady's mantle (<i>Alchemilla vulgaris</i>) extract	Pennyroyal (<i>Mentha pulegium</i>) extract
	Lady's Thistle (<i>Silybum marianum</i>) extract	Peony (<i>Paeonia albaflora</i>) extract
	Laurel (<i>Laurus nobilis</i>) extract	Peony (<i>Paeonia obovata</i>) root extract
	Lavender (<i>Lavandula angustifolia</i>) extract, water	Peppermint (<i>Mentha piperita</i>) extract, oil
25	Lemon (<i>Citrus medica limonum</i>) extract, juice extract, peel extract	Perilla <i>ocymoides</i> extract
	Lemon bioflauonoids extract	Periwinkle (<i>Vinca minor</i>) extract
	Lemongrass (<i>Cymbopogon schoenanthus</i>) extract	PEG-80 jojoba acid/alcohol
	Leopard flower (<i>Belamcanda chinensis</i>) root extract	PEG-120 jojoba acid/alcohol
30	Lettuce (<i>Lactuca scariola sativa</i>) extract	Pfaffia paniculata extract
	Licorice (<i>Glycyrrhiza glabra</i>) extract	Pheilodendron amurense extract
	Lilac (<i>Syringa vulgaris</i>) exract	Pospholipids
35	Linden (<i>Tilia argentea</i>) extract	pimento (<i>Pimenta officinalis</i>) extract
	Linden (<i>Tilia cordata</i>) extract, water	Pine (<i>Pinus sylvestris</i>) cone, needle extract
	Loquat (<i>Eriobotrya japonica</i>) leaf extract	Pineapple (<i>Ananas sativus</i>) extract
	Maidenhair fern extract	Plantain (<i>Plantago major</i>) extract
	magnolia kobus extract	Pollen extract
	Mallow extract	Pongamol
40	Mandragora officinarum extract	Poria Cocos extract
	Mannan	Pueraria lobota extract
	Marigold	Queen of the meadow extract
	Marine silts	Quillaja saponaria extract
	Matricaria (<i>Chamomilla recutita</i>) extract	Quince (<i>Pyrus cydonia</i>) seed extract
45	Meadowsweet (<i>Spiraea ulmaria</i>) extract	Quinoa (<i>Chenopodium quinoa</i>) extract
	Melon (<i>Cucumis melo</i>) extract	Raspberry (<i>Rubus</i>) extract
	MEA iodine	Rauwolfia (<i>Serpentina</i>) extract
	Mistletoe (<i>Viscum album</i>) extract	Red clover
	Mugwort (<i>Artemisia princeps</i>) extract, water	Rehmannia chinensis extract
50	Mulberry (<i>Morus alba</i>) root extract	Restharrow (<i>Ononis spinosa</i>) extract
	Mushroom extract	Rhododendron chrysanthum extract
	Myrrh (<i>Commiphora myrrha</i>) extract	Rhodophycea extract
	Nasturtium extract	Rhubarb (<i>Rheum palmatum</i>) extract
		Rice (<i>Oryza sativa</i>) bran extract

	Rice fatty acid	Willow (<i>Salix alba</i>) bark extract, extract
	Rose (<i>Rosa multiflora</i>) extract	Willow (<i>Salix alba</i>) leaf extract
	Rosemary (<i>Rosmarinus officinalis</i>) extract	Witch hazel (<i>Hamamelis virginiana</i>) extract
5	Rubia tinctorum extract	Yarrow (<i>Achillea millefolium</i>) extract
	Safflower (<i>Carthamus tinctorius</i>) extract	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)
	Sage (<i>Salvia officinalis</i>) extract, water	Yucca vera extract
	Sambucus nigra berry extract, extract	Zanthoxylum piperitum extract
	Sandalwood (<i>Santalum album</i>) extract	Zedoary (<i>Curcuma zedoraria</i>) oil
	Sanguinaria canadensis extract	
10	Saponaria officinalis extract	
	Sasa veitchii extract	
	Saxifraga sarmentosa extract	
	Scabiosa arvensis extract	
	Scutellaria baicalensis root extract	
15	Silk extract	Buffer
	Silver fir (<i>Abies pectinata</i>) extract	Ammonium carbonate, A. phoshate
	Sisal (<i>Agave rigida</i>) extract	Calcium hydroxide, C. phosphate
	Slippery elm extract	Citric acid
	Soapberry (<i>Sapindus mukross</i>) extract	Ethanolamine HCl
20	Sophora angustifolia extract	Glycine
	Sophora flavescens root extract	Phosphoric acid
	Sophora japonica extract	Potassium phosphate
	Soybean (<i>Glycine soja</i>) extract	Potassium sodium tartrate
	Soy (<i>Glycine soja</i>) germ extract, protein, sterol	Sodium acetate, S. citrate
25	Spearmint (<i>Mentha viridis</i>) extract, oil	Sodium lactate, S. phosphate
	Spinach (<i>Spinacia oleracea</i>) extract	Succinic acid
	Spiraea ulmaria extract	Tromethamine
	Sunflower (<i>Helianthus annuus</i>) seed extract	
30	Sweet almond (<i>Prunus amygdalus dulcis</i>) extract	
	Sweet chery (<i>Prunus avium</i>) extract	Carrier
	Sweet cicely (<i>Anthriscus cerefolium</i>) extract	Acrylates copolymer, spherical powder
	Sweet clover (<i>Melilotus officinalis</i>) extract	Arginine
	Sweet violet (<i>Viola odorata</i>) extract	Caprylic/capric triglyceride
	Swertia chirata extract	Caprylic/capric/lauryc triglyceride
35	Tea (<i>Camillia sinensis</i>) extract	Caprylic/capric/oleic triglyceride
	Thyme (<i>Thymus vulgaris</i>) extract	Ceteareth-20
	Tomato (<i>Solanum lycopersicum</i>) extract	Coconut (<i>Cocos nucifera</i>) oil
	Tormentil (<i>Potentilla erecta</i>) extract	Cyclodextrin
	Tuberose (<i>Polianthes tuberosa</i>) extract	Dipropylene glycol
40	Turmeric (<i>Curcuma longa</i>) extract	Glyceryl caprylate, G. caprylate/caprate
	Valerian (<i>Valeriana officinalis</i>) extract	Hydrated silica
	Walnut (<i>Juglans regia</i>) extract, leaf extract	Liposomes
	Water Lily (<i>Nymphaea alba</i>) root extract	magnesium silicate
	Watercress (<i>Nasturtium officinale</i>) extract	Methyl propanediol
45	Wheat (<i>Triticum vulgare</i>) extract, protein	PEG-8/SMDI copolymer
	Wheat (<i>Triticum vulgare</i>) germ extract	Potassium chloride
	Wheat bran lipids	PPG-12/SMDI Copolymer
	White ginger (<i>Hedychium coronarium</i>) extract	PPG-51/SMDI Copolymer
	White nettle (<i>Lamium album</i>) extract	Propylene carbonate, P. glycol
50	Wild agrimony (<i>Potentilla anserina</i>) extract	Serum albumin
	Wild cherry (<i>Prunus serotina</i>) bark extract	Sodium carboxymethyl beta-glucan
	Wild indigo (<i>Baptista tinctoria</i>)	Sodium chloride
	Wild marjoram (<i>Origanum vulgare</i>) extract	sodium magnesium silicate
		Tapioca dextrin
		Chelators
		beta-Alanine diacetic acid
		Calcium disodium EDTA
		Disodium EDTA, -copper

	EDTA	Cleansing
	HEDTA	Birch (<i>Betula alba</i>) leaf extract
	Malic acid	Lemongrass (<i>Cymbopogon schoenanthus</i>) extract
5	Monostearyl citrate	Oat (<i>Avena sativa</i>) bran extract
	Pentasodium pentetate	Passion flower (<i>Passiflora laurifolia</i>) fruit extract
	Pentetic acid	Witch hazel (<i>Hamamelis virginiana</i>) extract
	Phytic acid	Yarrow (<i>Achillea millefolium</i>) extract
	Potassium aspartate	
10	Sodium aspartate	
	Sodium dihydroxyethylglycinate	
	Sodium hexametaphosphate	
	Tetrahydroxypropyl ethylenediamine	
	Tetrasodium EDTA	
15	Tripotassium EDTA	
	Trisodium EDTA, HEDTA	
	Cell stimulant	
	Aesculus chinensis extract	
	Artemisia apiacea extract	
20	Astrocaryum muru, A. tucuma extract	
	Bactris gasipaes extract	
	Borojoa sorbilis extract	
	Calendula amurrensis extract	
	Chrysanthemum morifolium extract	
25	Coccinea indica extract	
	Comfrey (<i>Symphytum officinale</i>) leaf extract	
	Condurango extract	
	Dandelion (<i>Taraxacum officinale</i>) extract	
	Echitea glauca extract	
30	Equisetum arvense extract	
	Eucalyptus (<i>Eucalyptus globulus</i>) extract	
	Eupatorium fortunei extract	
	Euterpe precatoria extract	
	Ficus racemosa extract	
35	Glycoproteins	
	Hierochloe odorata extract	
	Horse chestnut (<i>Aesculus hippocastanum</i>) extract	
	Inga edulis extract	
	Kadsura heteriloba extract	
40	Ligustrum lucidum extract	
	Lysimachia foenum-graecum extract	
	Mauritia flexosa extract	
	Maximilliana regia extract	
	Melaleuca bracteata, M. symphyocarp extract	
45	Nelumbium speciosum extract	
	Ocimum basilicum extract, O. sanctum extract	
	Paulownia imperialis extract	
	Pfaffia spp. extract	
	Pterocarpus marsupianus extract	
50	Rubus thunbergii extract	
	Selinum spp. extract	
	Shorea robusta extract	
	Xanthozylum bungeanum extract	
		Conditioner
		Acetamide MEA
		6-(N-Acetylamo)4-oxyhexyltrimonium chloride
		Acrylamidopropyltrimonium chloride/acrylamide copolymer
		Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer
		AMP-isostearoyl hydrolyzed wheat protein
		Apricot (<i>Prunus armeniaca</i>) kernel oil
		Behenalkonium chloride
		Behenamidopropyl dihydroxypropyl dimonium chloride
		Benhenamidopropyl ethyldimonium ethosulfate
		Benhenamidopropyl PG-dimonium chloride
		Behenamidopropyldimethylamine behenate
		Behenamine oxide
		Behenoyl PG-trimonium chloride
		Behenyl betaine
		Benzyltrimonium hydrolyzed collagen
		Canolamidopropyl betain
		Capramide DEA
		Caprylic/capric/lauric triglyceride
		Caprylyl pyrrolidone
		Cassia auriculata extract
		Cetamine oxide
		Cetearylkonium chloride
		Chitosan PCA
		Citric acid
		Cocamidopropyl dimethylamine, C.d. lactate, C.d. propionate
		Cocamidopropyl dimethylaminohydroxypropyl hydrolyzed collagen
		Cocamidopropyl dimonium
		hydroxypropylhydrolyzed collagen
		Cocamidopropyl ethyldimonium ethosulfate
		Cocamidopropyl PG-dimonium chloride, C.P.c. phosphate
		Coco-morpholine oxide
		Coco/oleamidopropyl betaine
		Cocodimonium hydroxypropyl hydrolyzed hair keratin
		Cocodimonium hydroxypropyl hydrolyzed rice protein
		Cocodimonium hydroxypropyl hydrolyzed silk

	Cocodimonium hydroxypropyl hydrolyzed soy protein	Hydroxypropyl guar hydroxypropyltrimonium chloride
	Coconut alcohol	Hydroxypropyl-bis-
5	N-Cocoyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	isostearyamidopropyldimonium chloride
	Collagen pbthalate	Hydroxypropyl bis-stearylmonium chloride
	Dibehenyl/diarachidyl dimonium chloride	Hydroxypropyltrimonium gelatin
	Dibehenyldimonium chloride	Hydroxypropyltrimonium hydrolyzed keratin
	Dicetylmonium chloride	H.b. silk
10	Didecyldimonium chloride	Hydroxypropyltrimonium hydrolyzed wheat protein
	Dihydroxyethyl cocamine oxide	Isopropyl hydroxybutyramide dimethicone copolyol
	Dihydroxyethyl dihydroxypropyl stearmonium chloride	Isopropyl lanolate
	Dihydroxyethyl tallow glycinate	Isostearamidopropyl betaine, I. dimethylamine
15	Dihydroxyethyl tallowamine oxide	Isostearamidopropyl dimethylamine gluconate
	Dilauryl acetyl dimonium chloride	Isostearamidopropyl dimethylamine glycolate
	Dilinoleamidopropyl dimethylamine	Isostearamidopropyl dimethylamine lactat
	Dimethyl hydrogenated tallowamine	Isostearamidopropyl ethyldimonium ethosulfate
	Dimethyl lauramine, D.L. isostearate	Isostearamidopropyl laurylacetodimonium chloride
20	Dimethyl myristamine, soyamine, stearamine	Isostearamidopropyl morpholine, I.m. lactate
	Dimethylamidopropylamine dimerate	Isostearamidopropyl morpholine oxide
	Disodium hydrogenated cottonseed glyceride sulfosuccinate	Isostearamidopropyl PG-dimonium chloride
	Disodium laureth sulfosuccinate	Isostearaminopropalkonium chloride
25	Disodium lauroamphodiacetate	Isostearyl hydrolyzed animal protein
	Distearyldimonium chloride	Isostearylamidopropyl dihydroxypropyl dimonium chloride
	Ethyl ester of hydrolyzed keratin	Lactoglobulin
	N-Ethylether-bis-1,4-(N-isostearylamidopropyl-N,N-dimethyl ammonium chlo	Lauramidopropyl dimethylamine
30	Glutamic acid	Lauramidopropyl PG-dimonium chloride, I.P.c. phosphate
	Glyceryl collagenate	Lauramine oxide
	Glycine	Lauroampho PG-glycinate phosphate
	Guar hydroxypropyltrimonium chloride	Lauroyl hydrolyzed collagen, L.h. elastin
35	Henna (<i>Lawsonia inermis</i>) extract	Lauroyl silk amino acids
	Hydrogenated tallowamine oxide	Lauryl methyl gluceth-10 hydroxypropyl-dimonium chloride
	Hydrogenated tallowtrimonium chloride	Lauryl phosphate, L. pyrrolidone
	Hydrolyzed conchiorin protein	Lauryldimonium hydroxypropyl hydrolyzed collagen, keratin, soy protein
	Hydrolyzed egg protein	Linoleamidopropyldimethylamine
	Hydrolyzed extensin	Milk amino acids
40	Hydrolyzed fibronectin	Milk protein (<i>Lactis proteinum</i>)
	Hydrolyzed fish protein	Myristalkonium chloride
	Hydrolyzed keratin	Myristamidopropyl betaine, M. dimethylamine
	Hydrolyzed lactalbumin	Myrtrimonium bromide
	Hydrolyzed milk protein	Oat (<i>Avena sativa</i>) protein
45	Hydrolyzed oats	Oleamide
	Hydrolyzed reticulin	Oleamidopropyl betaine, O. dimethylamine
	Hydrolyzed soy protein	Oleamidopropyl dimethylamine hydrolyzed collagen
	Hydrolyzed sweet almond protein	Oleamidopropylamine oxide
	Hydrolyzed wheat protein/PVP copolymer	Oleamine
50	Hydrolyzed wheat protein polysiloxane polymer	
	Hydroxycetyl hydroxyethyl dimonium chloride	
	Hydroxyproline	
	Hydroxypropyl chitosan	

	Oleamine oxide	Ricinoleamidopropyl ethyldimonium ethosulfate
	Oleoyl sarcosine	Ricinoleamidopropyltrimonium chloride
	Oleyl betaine	Ricinoleamidopropyltrimonium ethosulfate
5	Oleyl dimethylamidopropyl ethonium ethosulfate	Silicone quaternium-3, -4
	Palmitamidopropyl betaine	Silk amino acids
	Palmitamidopropyl dimethylamine	Sodium/TEA-lauroyl collagen amino acids
	Palmitamine, P. oxide	Sodium/TEA-lauroyl hydrolyzed keratin
10	Panthenyl hydroxypropyl steardimonium chloride	Sodium/TEA-lauroyl keratin amino acids
	PEG-2 milk solids	Sodium citrate
	PEG-2 oleammonium chloride	Sodium cocoyl hydrolyzed soy protein
10	PEG-3 lauramine oxide	Sodium hydrogenated tallow dimethyl glycinate
	PEG-5 stearyl ammonium lactate	Sodium lauroyl collagen, keratin amino acids
	PEG-15 cocomonium chloride	Sodium lauroyl wheat amino acids
15	PEG-15 cocopolyamine	Sodium stearoamphoacetate
	PEG-15 tallowmonium chloride	Soluble keratin, wheat protein
	PEG-27	Soyamide DEA
	PEG-40	Soyamidopropyl benzylidimonium chloride
	PEG-85 lanolin	Soyamidopropyl betaine, S. dimethylamine
20	PEG-7000	Soyamidopropyl ethyldimonium ethosulfate
	Polydimethicone copolyol	Soyethyl morpholinium ethosulfate
	Polymethacrylamidopropyltrimonium chloride	Soyethylidimonium ethosulfate
	Polyoxyethylene dihydroxypropyl linoleaminium chloride	Stearamide MEA
25	Polyquaternium-2, -5, -6, -11, -16	Stearamidoethyl diethylamine, ethanolamine
	Polyquaternium-17, -18, -24, -29, -44	Stearamidopropyl benzyl dimonium chloride
	Potassium dimethicone copolyol panthenyl phosphate	Searamidopropyl cetearyl dimonium tosylate
	Potassium lauroyl collagen amino acids	Stearamidopropyl dimethylamine stearate
30	Potassium lauroyl hydrolyzed soy protein	Stearamidopropyl ethyldimonium ethosulfate
	Potassium lauroyl wheat amino acids	Stearamidopropyl morpholine lactate
	Potassium stearoyl hydrolyzed collagen	Stearamidopropyl PG-dimonium chloride
	PPG-5 lanolin alcohol ether	phosphate
	PPG-9 diethylmonium chloride	Stearmine oxide
35	PPG-20 lanolin alcohol ether	Steardimonium hydroxypropyl hydrolyzed collagen, keratin
	Proline	Steardimonium panthenol
	Propylene glycol stearate	Stearoyl amidoethyl diethylamine
	PVP/dimethiconylacrylate/polycarbamyl/poly glycol ester	Steartrimonium bromide
40	PVP/dimethylaminoethylmethacrylate copolymer	Stearyl dimethicone
	PVP/dimethylaminoethylmethacrylate/ polycarbamyl/polylglycol ester	Tallowamidopropyl dimethylamine
	PVP/hydrolyzed wheat protein copolymer	Tetramethyl trihydroxy hexadecane
	Quaternium-22, -26, -33, -61, -62, -70, -80	TEA-cocoyl hydrolyzed collagen
45	Quaternium-76 hydrolyzed collagen	Trachea hydrolysate
	Rapeseedamidopropyl benzylidimonium chloride	Tricetylmonium chloride
	Rapeseedamidopropyl epoxypropyl dimonium chloride	Tridecyl salicylate
	Rapeseedamidopropyl ethyldimonium ethosulfate	Triethonium hydrolyzed collagen ethosulfate
50	Rice peptide	Wheat germamidopropalkonium chloride
	Ricinoleamidopropyl-dimonium ethosulfate	Wheat germamidopropyl dimethylamine lactate
	Ricinoleamidopropyl betaine	Wheat germamidopropyl ethyldimonium ethosulfate
	Ricinoleamidopropyl dimethylamine lactate	Wheat peptide
		<u>Coupling agent</u>
		Acetyl monoethanolamine

	Butyloctanol	Decyl glucoside
	Myreth-3	Decyltetradeceth-25
	Oleyl alcohol	DEA lauryl sulfate
5	PPG-10 butanediol	Diamyl sodium sulfosuccinate
	PPG-10 cetyl ether	Dicyclohexyl sodium sulfosuccinate
	PPG-10 oleyl ether	Diisobutyl sodium sulfosuccinate
	PPG-15 stearyl ether	Disodium caproamphodiacetate
	PPG-22 butyl ether	Disodium caproamphodipropionate
	PPG-23 oleyl ether	Disodium capryloamphodiacetate
10	PPG-50 oleyl ether	Disodium capryloamphodipropionate
	Trideceth-7 carboxylic acid	Disodium cetearyl sulfosuccinate
	Denaturant	Disodium cocamido MEA-sulfosuccinate
	Brucine sulfate	Disodium cocamido MIPA-sulfosuccinate
15	Denatonium benzoate, saccharide	Disodium cocoamphodipropionate
	Nicotine sulfate	Disodium deceth-6 sulfosuccinate
	Sucrose octaacetate	Disodium isodecyl sulfosuccinate
	Thymol	Disodium lauramido MEA-sulfosuccinate
20	Dental powder	Disodium lauramido PEG-2 sulfosuccinate
	Dicalcium phosphate	Disodium laureth sulfosuccinate
	Silica	Disodium lauroamphodiacetate
	Sodium monofluorophosphate	Disodium lauroamphodipropionate
	Stannous fluoride	Disodium lauryl sulfosuccinate
25	Deodorant	Disodium myristamido MEA-sulfosuccinate
	Abietic acid	Disodium nonoxynol-10 sulfosuccinate
	Azadirachta indica extract	Disodium oleamido PEG-2 sulfosuccinate
	Chlorophyllin-copper complex	Disodium PEG-4 cocoamido MIPA-sulfosuccinate
30	Eugenia jambolana extract	Disodium ricinoleamido MEA-sulfosuccinate
	Farnesol	Disodium tallowimino dipropionate
	Fermented vegetable	Dodecylbenzene sulfonic acid
	Mauritia flexosa extract	Dodoxynol-6, -9
	Salvia miltiorrhiza extract	Isopropylamine dodecylbenzenesulfonate
35	Sodium aluminum chlorohydroxy lactate	Isostearamidopropyl betaine
	Spondias amara extract	Isosteareth-6 carboxylic acid
	Triethyl citrate	Isostearoamphopropionate
	Zinc phenol sulfonate, Z. ricinoleate	Isostearyl hydroxyethyl imidazoline
		Lauramidopropylamine oxide
		Laureth-11
40	Depilatory	Lauroampho PG-glycinate phosphate
	Barium sulfide	Lauryl glucoside, L. phosphate
	Beeswax, oxidized	Magnesium laureth sulfate, M. lauryl sulfate
	Calcium thioglycolate	Magnesium PEG-3 cocamide sulfate
	L-cysteine HCL	MEA-dodecylbenzenesulfonate
45	Potassium thioglycolate	MEA-laureth sulfate
	Sodium thioglycolate	MEA-lauryl sulfate
	Thioglycerin	MIPA-lauryl sulfate
		Myristamine oxide
		Myristic acid
50	Detergent	Nooxynol-10
	Ammonium laureth sulfate	Oleoamphohydroxypropyl sulfonate
	Ammonium lauryl sulfate	Oleth-12, -15
	Capramide DEA	Oleyl betaine
	Cocamidopropyl dimethylamine lactate	Palmitamidopropyl betaine

	PEG-10 glyceryl stearate	Shikonin
	PEG-15 glyceryl stearate	Sodium capryloamphoacetate
	PEG-25 glyceryl isostearate	Tea tree (<i>Melaleuca alternifolia</i>) oil
5	Potassium cocoyl hydrolyzed collagen	p-Tertiaryphenol
	Sodium caproamphoacetate	Dispersant
	Sodium cocoamphoacetate	Alkylated polyvinylpyrrolidone
	Sodium cocoamphopropionate	C20-40, C30-50, C40-60 alcohols
	Sodium cocomonoglyceride sulfate	Castor (<i>Ricinus communis</i>) oil
10	Sodium cocoyl hydrolyzed soy protein	Ceteareth-20
	Sodium cocoyl isethionate	Cetyl PPG-2 isodeceth-7 carboxylate
	Sodium C12-15 pareth-25 sulfate	Cholesteryl/behenyl/octyldodecyl lauroyl glutamate
	Sodium C14-16 olefin sulfonate	Decaglycerol monodioleate
	Sodium C14-17 alkyl secsulfonate	Diisocetyl dodecanedioate
	Sodium deceth sulfate	Diisostearyl adipate
15	Sodium decyl diphenyl ether sulfonate	Dimethicone copolyol methyl ether
	Sodium dodecylbenzenesulfonate	Diocetyl dodecyl dimer dilinoleate
	Sodium dodecyldiphenyl ether sulfonate	Diocetyl dodecyl dodecanedioate
	Sodium iodate	Ethyl hydroxymethyl oleyl oxazoline
20	Sodium laureth-2 sulfate	Glyceryl caprylate, G. caprylate/caprate
	Sodium laureth-3 sulfate	Glyceryl diisostearate
	Sodium laureth-7 sulfate	Hydrogenated castor oil, H. lecithin
	Sodium laureth-12 sulfate	Hydrogenated tallow glycerides
	Sodium laureth-13-carboxylate	Isobutylene/MA copolymer
	Sodium laureth sulfate	Isocetyl alcohol
25	Sodium lauriminodipropionate	Isopropyl C12-15-pareth-9-carboxylate
	Sodium lauroamphopropionate	Isostearyl neopentanoate
	Sodium lauroyl methyl alaninate	Lanolin acid
	Sodium lauryl phosphate, S.I. sulfate	Laureth-4, -6, -16
	Sodium lauryl sulfoacetate	Melanin
30	Sodium methyl oleoyl taurate	Nonoxynol-2, -18, -20, -30, -40
	Sodium methyl cocoyl taurate	Octoxynol-5, -10
	Sodium methyl lauroyltaurate	Octoxynol 16, 30, 40, 70
	Sodium methylnaphthalenesulfonate	Octyldodeceth-5
	Sodium myreth sulfate	Octyldodecyl/dimethicone copolyol citrate
35	Sodium myristyl sulfate	Oleth-40
	Sodium octyl sulfate, oleyl sulfate	Oleyl alcohol
	Sodium POE alkyl ether acetate	PEG-5 castor oil, glyceryl sesquioleate
	Sodium trideceth-7 carboxylate	PEG-6 beeswax
	Sodium trideceth sulfate	PEG-8/SMDI copolymer
40	Sodium tridecyl sulfate	PEG-9 castor oil, oleate, stearate
	Steareth-11, -30	PEG-10 dioleate, stearamine
	TEA-dodecylbenzenesulfonate	PEG-12 beeswax
	TEA-laureth sulfate	PEG-12 glyceryl dioleate, laurate
	TEA-lauryl sulfate	PEG-15 castor oil
45	TEA-palm kernel sarcosinate	PEG-20 almond glycerides
	TEA-PEG-3 cocamide sulfate	PEG-20 glyceryl isostearate
	Undecylenamidopropyl betaine	PEG-20 sorbitan triisostearate
	Disinfectant	PEG-25 castoroil
50	Benzalkonium chloride	PEG-30 dipolyhydroxystearate
	Chlorophene	PEG-40 hydrogenated castor oil PCA isostearate
	Didecyldimonium chloride	PEG-60 shea butter glycerides
	Myristalkonium saccharinate	

	Poloxamer 101, 122, 181, 182, 184	Behenyl erucate, B. isostearate
	Polyglyceryl-2 sesquioleate	Benzyl laurate
	Polyglyceryl-3 diisostearate, oleat	Bladderwrack (<i>Fucus vesiculosus</i>) extract
5	Polyglyceryl-5 distearate	Borage (<i>Borago officinalis</i>) seed oil
	Polyglyceryl-6 mixed fatty acids	Borageamidopropyl phosphatidyl PG-dimonium chloride
	Polyglyceryl-10 diisostearate, distearate	Brain extract
	Polyglyceryl-10 decaoleate	Brazil nut (<i>Bertholettia excelsa</i>) oil
	Polyhydroxystearic acid	Butyl myristate, oleate, stearate
10	Polysorbate 40, 80	Butyloctanol
	Potassium polyacrylate	Butyloctyl oleate
	PPG-3 PEG-6 oleyl ether	C12-13, C12-16, C14-15 alcohols
	PPG-9 diethylmonium phosphate	C12-15 alcohols octanoate
	PPG-12/SMDI Copolymer	C12-15 alkyl benzoate
15	PPG-15 stearyl ether	di-C12-15 alkyl fumarate
	PPG-25, PPG-40 diethylmonium chloride	C12-15 alkyl lactate
	PPG-51/SMDI Copolymer	Camellia kissi oil
	PVP/eicosene copolymer	Tea (<i>Camellia sinensis</i>) oil
	PVP/hexadecene copolymer	C10-30 cholesterol/lanostearol esters
20	Rapeseed oil, ethoxylated high erucic acid	Canola oil
	Ricinoleyl alcohol	Caprylic/capric triglyceride
	Sodium ceteth-13-carboxylate	Caprylic/capric triglyceride PEG-4 esters
	Sodium lignosulfonate, S. polymethacrylate	Caprylic/capric/lauric triglyceride
	Sodium polynaphthalenesulfonate	Caprylic/capric/linoleic triglyceride
25	Sorbitan oleate	Caprylic/capric/oleic triglycerides
	Steareth-10	Caprylic/capric/stearic triglyceride
	Tricontanyl PVP	Caprylic/capric/succinic triglyceride
	Triisostearin PEG-6 esters	Capsicum frutescens oleoresin
	Trioctyldodecyl citrate	Carrot (<i>Daucus carota sativa</i>) oil
30	Emollient	Cashew (<i>Anacardium occidentale</i>) nut oil
	Acetylated glycol stearate	Castor (<i>Ricinus communis</i>) oil
	Acetylated hydrogenated lanolin	Cetearyl behenate, C. candelillate
	Acetylated hydrogenated lard glyceride	Cetearyl isononanoate, C. octanoate
35	Acetylated hydrogenated vegetable glyceride	Cetearyl palmitate, C. stearate
	Acetylated lanolin, A.I. alcohol	Ceteth-10
	Acetylated lard glyceride	Cetostearyl stearate
	Acetylated monoglycerides	Cetyl C12-15 pareth-9 carboxylate
	Acetylated palm kernel glycerides	Cetyl acetate, C. alcohol
	Aleurites moluccana ethyl ester	Cetyl esters, C. lactate
40	Allantoin	Cetyl myristate, C. octanoate
	Aluminum/magnesium hydroxide stearate	Cetyl oleate, C. palmitate
	AMP-isostearoyl hydrolyzed soy protein	Cetyl PPG-2 isodeceth-7 carboxylate
	Apricot (<i>Prunus armeniaca</i>) kernel oil	Cetyl ricinoleate, C. stearate
	Arachidyl behenate	Cetyl stearyl octanoate
45	Argania spinosa oil	Chia (<i>Salvia hispanica</i>) oil
	Avocado (<i>Persea gratissima</i>) oil, unsaponifiables	Cholesteric esters
	Avocado oil ethyl ester	Cholesterol
	Babassu (<i>Orbignya oleifera</i>) oil	Cholesteryl/behenyl/octyldodecyl lauroyl glutamate
	Betyl isostearate, B. stearate	Cholesteryl hydroxystearate
50	Behenamidopropyl dihydroxypropyl dimonium chloride	Cholesteryl stearate
	Behenoxy dimethicone	Choleth-24
	Behenyl alcohol, B. behenate	C18-70 Isoparaffin

	C10-18, C12-18 triglycerides	Dioctylcyclohexane
	C12-15 linear alcohols 2-ethylhexanoate	Dioctyldodecyl dimer dilinoleate
	Cocamidopropyl PG-dimonium chloride	Dioctyldodecyl dodecanedioate
	Cocoa (Theobroma cacao) butter	Dioctyl malate, D. sebacate, succinate
5	Coco-caprylate/caprate	Dipentaerythritol fatty acid ester
	Coco-rapeseedate	Dipentaerythrityl hexacaprylate/hexacaprate
	Coconut (Cocos nucifera) oil	Dipentaerythrityl hexahydroxystearate/isostearate
	Cocoyl hydrolyzed soy protein	Distearyldimethylamine dilinoleate
	Collagen hthalate	Ditridecyl adipate
10	Colloidal oatmeal	Dog rose (Rosa canina) hips oil
	Comfrey (Symphytum officinale) leaf extract	Egg (Ovum) yolk extract
	Corn (Zea mays) oil	Emu (Dromiceius) oil
	Corn poppy (Papaver rhoeas) extract	Erucyl erucate
	Cottonseed (Gossypium) oil	Ethyl avocadate
15	Cuttlefish extract	Ethylhexyl isopalmitate
	Cyclomethicone	2-Ethylhexyl isostearate
	Deceth-4 phosphate	Ethyl linoleanate, E. minkate
	Decyl oleate	Ethyl morrhuate, E. myristate
	Decyltetradecanol	Ethyl oleate, E. olivate
20	Dialkydimethylpolysiloxane	Evening primrose (Oenothera biennis) extract, oil
	Dibutyl sebacate	Glycereth-4,5-lactate
	Dicapryl adipate	Glycereth-5 lactate
	Dicaprylyl ether, D. maleate	Glycereth-7 benzoate
	Diethylene glycol diisoononanoate	Glycereth-7 diisoononanoate
25	Diethylene glycol dioctanoate	Glycereth-7 triacetate
	bis-Diglyceryl/caprylate/caprate/isostearate/ hydroxystearate/adipate	Glycereth-7 trioctanoate
	bis-Diglyceryl/caprylate/caprate/isosteareth/ stearate/hydroxystearate/adipate	Glycereth-12, -26
30	Dihydroabietyl behenate	Glycerol tricaprylate/caprate
	Dihydroxyethyl tallowamine oleate	Glyceryl adipate, G. dioleate
	Diisobutyl adipate	Glyceryl isostearate, G. lanolate
	Diisocetyl adipate, dodecanedioate	Glyceryl linoleate, G. monopyroglutamate
	Diisodecyl adipate	Glyceryl myristate, G. oleat
35	Diisopropyl adipate, dimer dilinoleate	Glyceryl ricinoleate
	Diisopropyl sebacate	Glyceryl triacetyl hydroxystearate
	Diisostearoyl trimethylolpropane siloxy silicate	Glyceryl triacetyl ricinoleate
	Diisostearyl adipate	Glycosaminoglycans
	Diisostearyl dimer dilinoleate	Glycosophingolipids
40	Diisostearyl fumarate, D. malate	Gold of Pleasure oil
	Dilinoleic acid	Grape (Vitis vinifera) seed oil
	Dimethicone	Hazel (Corylus avellana) nut oil
	Dimethicone copolyol	Helianthus annum ethyl ester
	Dimethicone copolyol acetate, D.c. almondate	Hexadecyl isopalmitate
45	Dimethicone copolyol isostearate, D.c. lactate	Hexamethyldisiloxane
	Dimethicone copolyol methyl ether	hexyl laurate
	Dimethicone copolyol phthalate	hexyldecanol
	Dimethicone propylethylenediamine behenate	Hexyldecyl stearate
	Dimethiconol stearate	honey extract
	Dimethyl lauramine oleate	Hybrid safflower (Carthamus tinctorius) oil
	Dioctyl adipate	Hybrid sunflow (Helianthus annus) oil
50	Dioctyl dimer dilinoleate	Hydrogenated C6-14 olefin polymers
		Hydrogenated castor oil
		Hydrogenated castor oil laurate
		hydrogenated coconut oil

	Hydrogenated cottonseed oil	Isostearyl diglyceryl succinate
	Hydrogenated C12-18 triglycerides	Isostearyl erucate, I. erucyl erucate
	Hydrogenated lanolin	Isostearyl isostearate, I. lactate
5	Hydrogenated lanolin, distilled	Isostearyl malate, I. myristate
	Hydrogenated lecithin	Isostearyl neopentanoate, palmitate
	Hydrogenated milk lipids	Isostearyl stearoyl stearate
	Hydrogenated mink oil	Isostearyl amidopropyl dihydroxypropyl dimonium chloride
	Hydrogenated palm kernel glycerides	Isotridecyl isononanoate
10	Hydrogenated palm oil	Isotridecyl myristate
	Hydrogenated polyisobutene	Jojoba (<i>Buxus chinensis</i>) oil
	Hydrogenated soybean oil	Jojoba butter, J. esters
	Hydrogenated starch hydrolysate	Jojoba oil, synthetic
	Hydrogenated tallow glyceride	Kukui (<i>Aleurites molaccana</i>) nut oil
15	Hydrogenated tallow glyceride lactate	Lactamide DGA
	Hydrogenated turtle oil	Laneth-10 acetate
	Hydrogenated vegetable glycerides	Lanolin, L. acid
	Hydrogenated vegetable oil	Lanolin alcohol, L. oil
	Hydrolyzed collagen	Lanolin, ultra anhydrous
20	Hydrolyzed conchiorin protein	Lanolin wax
	Hydrolyzed keratin	Lanostearol
	Hydrolyzed mushroom (<i>Tricholoma matsutake</i>) extract	Lard glyceride
	Hydrolyzed oat protein	Laureth-2, -3
	Hydroxylated lanolin	Laureth-2 acetate, L. benzoate
25	Hydroxylated milk glycerides	Laureth-2-octanoate
	Hydroxystearic acid butter	Lauric/palmitic/oleic triglyceride
	Isobutyl palmitate, I. stearate	Lauryl behenate, L. lactate
	Isoctetyl behenate, I. octanoate	Lauryl phosphae
30	Isoctetyl palmitate, I. salicylate	Lauryldimethylamine isostearate
	Isoctetyl stearate	Lesquerela fendleri oil
	Isodeceth-2 cocoate	Linoleic acid
	Isodecyl citrate, I. cocoate	Macadamia ternifolia nut oil
	Isodecyl isononanoate, I. laurate	Maleated soybean oil
35	Isodecyl neopentanoate	Mango (<i>Magnifera indica</i>) oil, seed oil
	Isodecyl octanoate, I. oleate	Mango kernel oil
	Isodecyl stearate	Meadowfoam (<i>Limnanthes alba</i>) seed oil
	Isododecane	Menhaden (<i>Brevoortia tyrannus</i>) oil
	Isoeicosane	Methyl acetyl ricinoleate
40	Isohexadecane	Methyl gluceth-20
	isononyl isononanoate	Methyl gluceth-20 benzoate, M.g. distearate
	Isopentylidol	Methyl hydroxystearate, M. ricinoleate
	Isopropyl avocadate	Microcrystalline wax
	Isopropyl C12-15-pareth-9-carboxylate	Mineral oil (<i>Paraffinum liquidum</i>)
45	Isopropyl isostearate	Mink oil
	Isopropyl lanolate, I. linoleate	Musk rose (<i>Rosa moschata</i>) oil
	Isopropyl myristate, I. palmitate	Myreth-3
	Isopropyl PPG-2-isodeceth-7 carboxylate	Myreth-3 caprate, M. laurate
	Isopropyl sterate	Myreth-3 myristate, M. octanoate
50	Isosorbide laurate	Myristyl alcohol, M. lactate
	Isostearic acid	Myristyl myristate, M. octanoate
	Isostearyl alcohol	Myristyl propionate, M. stearate
	Isostearyl behenate, I. benzoate	Neatsfoot oil
		Neem (<i>Melia azadirachta</i>) seed oil

	Neopentyl glycol dicaprate	PEG-15 cocamine oleate/phosphate
	Neopentyl glycol dicaprate/dicaprylate	PEG-18
	Neopentyl glycol diisooctanoate	PEG-20
	Neopentyl glycol dioctanoate	PEG-20 hydrogenated castor oil isostearate
5	Oat (<i>Avena sativa</i>) bran extract, extract, flour	PEG-20 hydrogenated castor oil triisostearate
	Octacosanyl stearate	PEG-20 hydrogenated lanolin
	Octyl cocoate	PEG-24 hydrogenated lanolin
	Octyl hydroxystearate, O. isononanoate	PEG-25 PABA, P. propylene glycol stearate
	Octyl neopentanoate, O. octanoate	PEG-40 glyceryl laurate
10	Octyl oleate, O. palmitate	PEG-40 hydrogenated castor oil isostearate
	Octyl pelargonate, O. stearate	PEG-40 hydrogenated castor oil laurate
	Octyldecanol	PEG-40 hydrogenated castor oil triisostearate
	Octyldodecanol	PEG-40 jojoba oil
	Octyldodecyl behenate, O. benzoate	PEG-50 hydrogenated castor oil laurate
15	Octyldodecyl erucate, O. myristate	PEG-50 hydrogenated castor oil triisostearate
	Octyldodecyl oleate, O. ricinoleate	PEG-60 shea butter glycerides
	Octyldodecyl stearate	PEG-70 mango glycerides
	bis-Octyldodecyl stearoyl dimer dilinoleate	PEG-75
	Octyldodecyl stearoyl stearate	PEG-75 lanolin, P. shea butter glycerides
20	Oleamine oxide	PEG-75 shorea butter glycerides
	Oleic/palmitoleic/linoleic glycerides	PEG-150
	Oleic alcohol	PEG/PPG-17/6 copolymer
	Oleostearine	Pentaerythrityl dioleate
	Oleyl alcohol, O. erucate, O. oleate	Pentaerythrityl
25	Olive (<i>Olea europaea</i>) oil	isostearate/caprate/caprylate/adipate
	Orange (<i>Citrus aurantium dulcis</i>) peel wax	Pentaerythrityl stearate
	Orange roughy (<i>Hoplostethus atlanticus</i>) oil	Pentaerythrityl stearate/caprate/caprylate/adipate
	Palm (<i>Elaeis guineensis</i>) oil	Pentaerythrityl tetracaprylate/tetracaprate
	Palm kernel glycerides	Pentaerythrityl tetraisononanoate, P.
30	Palmitic acid	tetraisostearate
	Panthenyl triacetate	Pentaerythrityl tetralaurate, P. tetraoctanoate
	Partially hydrogenated canola oil	Pentaerythrityl tetraoleate, P. tetrapelargonate
	Partially hydrogenated soybean oil	Pentaerythrityl tetrastearate
	Peach (<i>Prunus persica</i>) extract	Perfluorodecalin
35	Peanut (<i>Arachis hypogaea</i>) oil	Perfluoropolymethylisopropyl ether
	PEG-2 diisoonanoate, P. dioctanoate	Petrolatum
	PEG-2 milk solids	Phenethyl dimethicone
	PEG-4	Phenyl dimethicone, P. methicone, P.
	PEG-4 diheptanoate, P. dilaurate	trimethicone
40	PEG-5 C8-12 alcohols citrate	Phytantriol
	PEG-5 C14-18 alcohols citrate	Pistachio (<i>Pistacia vera</i>) nut oil
	PEG-5 hydrogenated castor oil	Placental enzymes
	PEG-5 hydrogenated castor oil triisostearate	Pollen extract
	PEG-6	Poloxamer 105 benzoate
45	PEG-6 capric/caprylic glycerides	Poloxamer 182 dibenzoate
	PEG-7 glyceryl cocoate	Polybutene
	PEG-8	Polydecene
	PEG-8 dilaurate, P. dioleate	Polydimethicone copolyol
	PEG-8/SMDI copolymer	Polyethylene glycol
50	PEG-9 stearyl stearate	Polyglyceryl-2 diisostearate, P. tetraisostearate
	PEG-10 stearyl stearate	Polyglyceryl-2 triisostearate
	PEG-12	Polyglyceryl-3 diisostearate, P. oleate
	PEG-12 dioleate, P. palm kernel glycerides	Polyglyceryl-3 stearate

	Polyglyceryl-6 dioleate	PPG-51/SMDI Copolymer
	Polyglyceryl-10 decaoleate, P. decastearate	PPG-53 butyl ether
	Polyglyceryl-10 tetraoleate	Propylene glycol ceteth-3 acetate
	Polyisobutene	Propylene glycol dicaprylate
5	Polyisobutene/isoheptapentacontahectane	Propylene glycol dicaprylate/dicaprate
	Polyisobutene/isooctabexacontane	Propylene glycol diisostearate, P.g. dioctanoate
	Polyisobutene/isopentacontaoctane	Propylene glycol dipelargonate
	Polyisoprene	Propylene glycol isoceteth-3-acetate
10	Polyoxyethylene polyoxypropylene glycol	Propylene glycol isostearate, P.g. laurate
	Polyquaternium-2	Propylene glycol myristate
	Polysiloxane polyalkylene copolymer	Propylene glycol myristyl ether acetate
	Polysorbate 40	Propylene glycol stearate, SE
	Potassium dimethicone copolyol phosphate	Pumpkin (<i>Cucurbita pepo</i>) seed oil
15	PPG-2-buteth-3	Quinoa (<i>Chenopodium quinoa</i>) oil
	PPG-2 lanolin alcohol ether	Rapeseed (<i>Brassica campestris</i>) oil
	PPG-2 myristyl ether propionate	Rice (<i>Oryza sativa</i>) bran oil, bran wax
	PPG-3 hydrogenated castor oil	Rice fatty acid
	PPG-3 myristyl ether	Safflower (<i>Carthamus tinctorius</i>) oil
20	PPG-5-buteth-7	Salmon (<i>Salmo</i>) egg extract
	PPG-5-laureth-5	Sesame (<i>Sesamum indicum</i>) oil
	PPG-5 butyl ether	Shark liver oil
	PPG-5 lanolin wax	Shea butter (<i>Butyrospermum parkii</i>)
	PPG-5 pentaerythrityl ether	Shea butter (<i>Butyrospermum parkii</i>) extract
	PPG-7-buteth-10	Shea butter, ethoxylate
25	PPG-8/SMDI copolymer	Shorea stenoptera butter
	PPG-9	Silybum marianum ethyl ester
	PPG-9-buteth-12	Sitostearyl acetate
	PPG-9 butyl ether	Skin lipids
30	PPG-10 butanediol, P. cetyl ether	Slippery elm extract
	PPG-10 methyl glucose ether	Sodium C8-16 isoalkylsuccinyl lactoglobulin sulfonate
	PPG-10 oleyl ether	Sodium carboxymethyl beta-glucan
	PPG-11 stearyl ether	Sodium ceteth-13-carboxylate
	PPG-12-buteth-16	Sodium dimethicone copolyol acetyl methyltaurate
35	PPG-12-PEG-50 lanolin	Soium glyceryl oleate phosphate
	PPG-12-PEG-65 lanolin oil	Sodium hyaluronate, S. polymethacrylate
	PPG-12/SMDI Copolymer	Sorbiteth-20
	PPG-14 butyl ether	Sorbitan isostearate, S. palmitate
	PPG-15 butyl ether, P. stearyl ether	Sorbitan sesquioleate, S. sesquistearate
40	PPG-15 stearyl ether benzoate	Sorbitan trioleate
	PPG-16 butyl ether	Soybean (<i>Glycine soja</i>) oil
	PPG-18 butyl ether	Spermaceti
	PPG-20	Sphingolipids
	PPG-20-buteth-30	Squalene
45	PPG-20 cetyl ether	Stearamidopropyl cetearyl dimonium tosylate
	PPG-24-glycereth-24	Steareth-4 stearate
	PPG-26	Stearic acid, S. hydrazide
	PPG-27 glycetyl ether	Stearoxy dimethicone
	PPG-28-buteth-35	Stearoxymethicone/dimethicone copolymer
50	PPG-30	Stearyl behenate, S. benzoate
	PPG-30 cetyl ether	Stearyl dimethicone, S. erucate
	PPG-40 butyl ether	Stearyl heptanoate, S. propionate
	PPG-50 cetyl ether, P. oleyl ether	

	Stearyl stearate	Behenamidopropyl dihydroxypropyl dimonium chloride
	Stearyl stearoyl stearate	Beheneth-5, -10, -20, -30
	Sucrose cocoate	Behenic acid
5	Sunflower (<i>Helianthus annuus</i>) seed oil	Behenyl betain
	Sweet almond (<i>Prunus amygdalus dulcis</i>) oil	Borageamidopropyl phosphatidyl PG-dimonium chloride
	Sweet cherry (<i>Prunus avium</i>) pit oil	Butyloctanol
	Synthetic jojoba oil	C12-20 acid PEG-8 ester
	Synthetic wax	C18-36 acid
	Tallow	Calcium dodecylbenzene sulfonate
10	Tetradecycleicosyl stearate	Calcium protein complex
	Tocopheryl acetate	Calcium stearate
	Tricaprin	Calcium stearoyl lactylate
	Tricaprylin	Capramide DEA
	Tricaprylyl citrate	Caprylic/capric acid
15	Tricholoma matsutake extract	Caprylic/capric glycerides
	Tridecyl behenate, T. cocoate	Castor oil, ethoxylate
	Tridecyl erucate, T. neopentanoate	Cetalkonium chloride
	Tridecyl octanoate, T. stearate	Ceteareth-2 -4 -5 -6
	Tridecyl stearoyl stearate	Ceteareth-2 phosphate
20	Tridecyl trimellitate	Ceteareth-5 phosphate
	Trihexyldecyl citrate	Ceteareth-8 -10 -11 -12
	Triisocetyl citrate	Ceteareth-10 phosphate
	Triisostearin	Ceteareth-15 -17 -20 -25
	Triisostearyl citrate	Ceteareth-27 -29 -30 -34
25	Triisostearyl trilinoleate	Cetearyl alcohol
	Trilaурин	Cetearyl glucoside
	Trilinolein	Ceteth-2 -4 -6 -10 -12 -13
	Trimethylolpropane tricaprlylate/tricaprante	Ceteth-16 -20 -25 -30 -33
	Trimethylolpropane tricocoate	Cetethyldimonium bromide
30	Trimethylolpropane trilaurate	Cetrimonium chloride
	Trimyristin	Cetyl dimethicone copolyol
	Trioctanoin	Cetyl phosphate
	Trioctyldodecyl citrate	Cholesterol
	Triolein	Choleloth-10 -15 -24
35	Tripalmitin	Cocamide DEA, C. MEA
	Tripropylene glycol citrate	Cocamidopropyl dimethylamine
	Tristearin	Cocamidopropyl PG-dimonium chloride
	Triundecanoin	phosphate
	Vegetable oil	Cocamine
40	Walnut (<i>Juglans regia</i>) oil	Coceth-7 carboxylic acid
	Wheat (<i>Triticum vulgare</i>) germ oil	Coconut acid
	Emulsifier	Copper protein complex
	Acetylated hydrogenated lard glyceride	Cottonseed glyceride
45	Acetylate hydrogenated vegetable glyceride	C12-13 pareth-3 -4 -9 -23
	Acetylated monoglycerides	C16-18 pareth-3 -5.5 -13 -19
	Acrylates/C10-C30 alkyl acrylate crosspolymer	Cyclodextrin
	Acrylates/vinyl isodecanoate crosspolymer	Decaglycerol monodioleate
	Acrylic acid/acrylonitrogens copolymer	DEA-ceteareth-2-phosphate
50	2-Aminobutanol	DEA-cetyl phosphate
	Ammonium acrylates/acrylonitrogens copolymer	DEA-cyclocarboxypropyloleate
	Arachidyl alcohol	DEA-oleteth-3-phosphate
	Beeswax	

	DEA-oleth-5-phosphate	Glyceryl undecylenate
	DEA oleth-10 phosphate	Glycol distearate, G. oleate
	DEA-oleth-20-phosphate	Glycol palmitate, G. stearate
	Diceteareth-10 phosphoric acid	Glycol stearate SE
5	Diethanolamine	Glycolamide stearate
	Diethylaminoethyl stearate	Glycosphingolipids
	Diglyceryl stearate malate	Hydrogenated coco-glycerides
	Dihydrocholeth-15 -20 -30	Hydrogenated cottonseed glyceride
	Dihydrogenated tallow phthalic acid amide	Hydrogenated lanolin
10	Dilauryl acetyl dimonium chloride	Hydrogenated lecithin
	Dilinoleamidopropyl dimethylamine dimethicone copoloyl phosphate	Hydrogenated palm oil
	Dilinoleic acid	Hydrogenated soy glyceride
15	Dimethicone copolyol almondate	Hydrogenated tallow glycerides
	Dimethicone copolyol isostearate	Hydrogenated tallow glycerides citrate
	Dimethicone copolyol laurate	Hydroxycetyl phosphate
	Dimethicone copolyol methyl ether	Hydroxylated lanolin
	Cimethicone copolyol olivate	Hydroxylated lecithin
	Dimethicone copolyol phthalate	Hydroxyoctacosanyl hydroxystearate
20	Dipalmitoylethyl hydroxyethylmonium methosulfate	Hydroxypropyl-bis-
	Dipropylene glycol	isostearylamidopropyldimonium chloride
	Disodium hydrogenated cottonseed glyceride sulfosuccinate	Isoceteareth-8 stearate
25	Disodium ricinoleamido MEA-sulfosuccinate	Isoceteth-10 stearate
	Disodium stearyl sulfosuccinate	Isoceteth-20
	Disodium sulfosuccinamide	Isocetyl alcohol
	Distearyl phthalic acid amide	Isolaureth-6
	N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride	Isostearamidopropyl dimethylamine gluconate
30	Dodecylphenol-ethylene oxide condensate	Isostearamidopropyl dimethylamine glycolate
	Egg (Ovum) yolk extract	Isostearamidopropyl laurylacetodimonium chloride
	Emulsifying wax NF	Isosteareth-2 -3 -10 -12 -20 -22 -50
	Ethoxylated fatty alcohol	Isostearath-2-octanoate
35	N-Ethylether-bis-1,4-(N-isostearylaminodopropyl- N,N-dimethyl ammonium chlo	Isostearath-10 stearate
	Ethyl hexanediol	Isostearic acid
	Euglena gracilis polysaccharide	isostearyl diglyceryl succinate
	Glycereth-26 phosphate	Isostearyl amidopropyl dihydroxypropyl dimonium chloride
40	Glyceryl caprylate, G. caprylate/caprate	Karaya (Sterculia urens) gum
	Glyceryl citrate/lactate/linoleate/oleate	Laneth-5 -10 -15 -16 -20 -40
	Glyceryl cocoate, G. dilaurate	Laneth-10 acetate
	Glyceryl dilaurate, G. dioleate	Lanolin
	Glyceryl distearate, G. hydroxystearate	Lanolin alcohol
45	Glyceryl isostearate, G. lanolate	Lanolin, ultra anhydrous
	Glyceryl laurate, G. linoleate	Lanolin wax
	Glyceryl mono-di-tri-caprylate	Lauramide DEA, L. MEA
	Glyceryl myristate, G. oleate	Lauramidopropyl dimethylamine
	Glyceryl palmitate, G. ricinoleate	Lauramidopropyl PG-dimonium chloride
50	Glyceryl ricinoleate SE	Laureth-1 -2 -3 -4 -5
	Glyceryl stearate, G. stearate citrate	Laureth-2-octanoate
	Glyceryl stearate lactate	Laureth-3 phosphate
	Glyceryl stearate SE	Laureth-4 carboxylic acid

	Laureth-16 -20 -23 -25 -30	PEG-3 glyceryl tristearate
	Lauryl PCA	PEG-3 lanolate, P. sorbitan oleate
	Laurylmethicone copolyol	PEG-3 stearate
	Lecithin	PEG-4 dioleate, P. diisostearate
5	Linoleamidopropyl PG-dimonium chloride phosphate	PEG-4 dilaurate, P. distearate
	Lithium stearate	PEG-4 glyceryl distearate
	Magnesium sulfate hepta-hydrate	PEG-4 laurate, P. oleate
	Maleated soybean oil	PEG-4 stearate
10	Methoxy PEG-17/dodecyl glycol copolymer	PEG-4 stearyl stearate
	Methyl gluceth-20 distearate	PEG-4 tallate
	methyl glucose dioleate, M.g. sesquioctostearate	PEG-5 castor oil, P. cocamine
	Methyl glucose sesquistearate	PEG-5 C12-C18 alcohols
	MEA-laureth sulfate	PEG-5 glyceryl isostearate
15	Myreth-3 -4 -7	PEG-5 glyceryl sesquioleate
	Myreth-3 myristate	PEG-5 glyceryl stearate
	Myristamidopropyl dimethylamine	PEG-5 glyceryl triisostearate
	Nonoxynol-1 -2 -4 -5 -6 -7	PEG-5 lanolate, P. oleamine
	Nonoxynol-8 -9 -10 -11 -12 -13	PEG-5 soy sterol, P. soyamine
20	Nonoxynol-14 -15 -18 -20 -30 -40 -50	PEG-5 stearamine, P. stearate
	Nonyl nonoxynol-5 -10	PEG-5 tallow amine
	Oat (Avena sativa) flour	PEG-6 capric/caprylic glycerides
	Octoxynol-1 -3 -5 -8 -10	PEG-6 cocamide
	Octoxynol 16, 30, 40	PEG-6 C12-14 ether
25	2-Octyl dodecyl alcohol	PEG-6 dilaurate, P. dioleate
	Octyldodecanol	PEG-6 distearate, P. isostearate
	Octyldodeceth-20 -25	PEG-6 lauramide, P. laurate
	Oleamide DEA	PEG-6 oleate, P. palmitate
	Oleamidopropyl dimethylamine	PEG-6 sorbitan beeswax
30	Oleamine oxide	PEG-6 sorbitan laurate
	Oleic acid	PEG-6 sorbitan oleate
	Oleth-2 -3 -4 -5 -6 -7 -8 -9	PEG-6 sorbitan stearate
	Oleth-10 -12 -15 -20 -23	PEG-6 stearate
	Oleth-25 -30 -40 -50	PEG-6-32
35	Oleth 13	PEG-6-32 stearate
	Oleth-2 phosphate	PEG-7 glyceryl cocoate
	Oleth-3 phosphate	PEG-7 hydrogenated castor oil
	Oleth-5 phosphate	PEG-7 oleate
	Oleth-10 phosphate	PEG-7.5 tallowamine
40	Oleth-20 phosphate	PEG-8
	Palm acid	PEG-8 beeswax, P. castor oil
	Palmitamidopropyl dimethylamine	PEG-8 C12-14 ether
	Palmitic acid	PEG-8 dilaurate, P. dioleate
	PEG-2 cocamine, P. distearate	PEG-8 distearate
45	PEG-2 hydrogenated tallow amine	PEG-8 glyceryl laurate
	PEG-2 laurate, P. laurate SE	PEG-8 laurate, P. oleate
	PEG-2 oleamine, P. oleate	PEG-8, P. tallate
	PEG-2 soyamine, P. stearamine	PEG-9 castor oil
	PEG-2 stearate, P. stearate SE	PEG-9 diisostearate
50	PEG-3 cocamide	PEG-9 dioleate, P. distearate
	PEG-3 C12-C18 alcohols	PEG-9 laurate, P. oleate
	PEG-3 glyceryl isostearate	PEG-9 stearate
	PEG-3 glyceryl triisostearate	PEG-10 castor oil, P. cocamine

	PEG-10 C12-18 alcohols	PEG-25 propylene glycol stearate
	PEG-10 dioleate	PEG-25 soy stearol, P. stearate
	PEG-10 glyceryl isostearate	PEG-29 castor oil
	PEG-10 hydrogenated castor oil	PEG-30 castor oil
5	PEG-10 hydrogenated castor oil triisostearate	PEG-30 dipolyhydroxystearate
	PEG-10 lanolate	PEG-30 glyceryl cocoate
	PEG-10 polyglyceryl-2 laurate	PEG-30 glyceryl isostearate
	PEG-10 sorbitan laurate	PEG-30 glyceryl laurate
	PEG-10 soy sterol, P. stearamine	PEG-30 glyceryl oleate
10	PEG-10 stearate	PEG-30 glyceryl stearate
	PEG-11 babassu glycerides	PEG-30 hydrogenated castor oil
	PEG-11 castor oil	PEG-30 lanolin
	PEG-12 dilaurate, P. dioleate	PEG-30 sorbitan tetraoleate
	PEG-12 distearate	PEG-32 dilaurate, P. dioleate
15	PEG-12 glyceryl dioleate	PEG-32 distearate, P. laurate
	PEG-12 laurate, P. oleate	PEG-32 oleate, P. stearate
	PEG-12 stearate, P. tallate	PEG-33 castor oil
	PEG-14 avocado glycerides	PEG-35 castor oil, P. stearate
	PEG-15 castor oil	PEG-40 castor oil
20	PEG-15 cocamine	PEG-40 glycetyl isostearate
	PEG-15 glycetyl isostearate	PEG-40 glycetyl laurate
	PEG-15 glycetyl laurate	PEG-40 glycetyl triisostearate
	PEG-15 glycetyl ricinoleate	PEG-40 hydrogenated castor oil
	PEG-15 oleamine, P. oleate	PEG-40 hydrogenated castor oil PCA isostearate
25	PEG-15, P. stearamine	PEG-40 sorbitan diisostearate
	PEG-15 tallow amine	PEG-40 sorbitan lanolate
	PEG-15 tallow polyamine	PEG-40 sorbitan tetraoleate
	PEG-16	PEG-40 stearate
	PEG-16 hydrogenated castor oil	PEG-40/dodecyl glycol copolymer
30	PEG-16 soy sterol	PEG-42 babassu glycerides
	PEG-18 stearate	PEG-44 sorbitan laurate
	PEG-20 almond glycerides	PEG-45 palm kernel glycerides
	PEG-20 castor oil, P. dilaurate	PEG-45 safflower glycerides
	PEG-20 dioleate, P. distearate	PEG-50 lanolin, P. stearamine
35	PEG-20 glycetyl laurate	PEG-50 stearate
	PEG-20 glycetyl oleate	PEG-60 almond glycerides
	PEG-20 glycetyl stearate	PEG-60 castor oil
	PEG-20 glycetyl triisostearate	PEG-60 corn glycerides
	PEG-20 glycetyl tristearate	PEG-60 glycetyl triisostearate
40	PEG-20 hydrogenated castor oil	PEG-60 hydrogenated castor oil
	PEG-20 hydrogenated lanolin	PEG-60 hydrogenated castor oil isostearate
	PEG-20 lanolin, P. laurate	PEG-60 hydrogenated castor oil triisostearate
	PEG-20 oleate	PEG-60 shea butter glycerides
	PEG-20 methyl glucose sesquistearate	PEG-60 sorbitan tetraoleate
45	PEG-20 sorbitan beeswax	PEG-70 mango glycerides
	PEG-20 sorbitan isostearate	PEG-75
	PEG-20 sorbitan triisostearate	PEG-75 castor oil, P. dilaurate
	PEG-20 sorbitan trioleate	PEG-75 dioleate, P. distearate
	PEG-20 stearate, P. tallow amine	PEG-75 lanolin, P. laurate
50	PEG-23 oleate, P. stearate	PEG-75 oleate
	PEG-24 hydrogenated lanolin	PEG-75 shea butter glycerides
	PEG-25 castor oil	PEG-75 shorea butter glycerides
	PEG-25 phytosterol	PEG-75 stearate

	PEG-80 sorbitan laurate	Polysorbate 65, 80, 81, 85
	PEG-90 stearate	Potassium alginate, P. cetyl phosphate
	PEG-100 castor oil	Potassium laurate, P. myristate
5	PEG-100 hydrogenated castor oil	Potassium tallowate
	PEG-100 lanolin, P. stearate	PPG-1-PEG-9 lauryl glycol ether
	PEG-120 distearate	PPG-2-ceteareth-9
	PEG-150 dilaurate, P. dioleate	PPG-3 isosteareth-9
	PEG-150 distearate, P. lanolin	PPG-3 PEG-6 oleylether
	PEG-150 laurate, P. oleate	PPG-5-buteth-7
10	PEG-150 stearate	PPG-5-ceteth-20
	PEG-200 castor oil	PPG-5-ceteth-10 phosphate
	PEG-200 glyceryl stearate	PPG-8 oleate
	PEG-200 hydrogenated castor oil	PPG-10 cetyl ether phosphate
	PEG-200 laurate, P. oleate	PPG-12-PEG-50 lanolin
15	PEG-400 laurate	PPG-15 stearyl ether
	Phosphate esters	PPG-24-buteth-27
	Phosphated amine oxides	PPG-25 laureth-25
	Phospholipids	PPG-26-buteth-26
20	Poloxamer 101, 105, 122, 123, 124	PPG-26 oleate
	Poloxamer 181, 182, 184, 185, 235, 237	PPG-36 oleate
	Poloxamer 238, 334, 338, 407	Propylene glycol alginate, P.g. dioleate
	Polyglyceryl-2 oleate	Propylene glycol hydroxystearate
	Polyglyceryl-2 polyhydroxystearate	Propylene glycol laurate, P.g. ricinoleate
25	Polyglyceryl-2 sesquiosostearate	Propylene glycol ricinoleate SE
	Polyglyceryl-2 stearate	Propylene glycol stearate
	Polyglyceryl-2-PEG-4-distearate	Propylene glycol stearate, SE
	Polyglyceryl-2-PEG-4-stearate	Quaternium-33
	Polyblycetyl-3 diisostearate, P. dioleate	Rapeseedamidopropyl ethyldimonium ethosulfate
	Polyglyceryl-3 distearate	Rice (<i>Oryza sativa</i>) bran wax
30	Polyglyceryl-3 methylglucose distearate	Ricinoleamide DEA
	Polyglyceryl-3 oleate, P. polycricinoleate	Ricinoleic acid
	Polyglyceryl-3 stearate	Saponins
	Polyglyceryl-4 oleate, P. stearate	Selenium protein complex
35	Polyglyceryl-6 dioleate, P. distearate	Silicone quaternium-5, -6
	Polyglyceryl-6 laurate, P. myristate	Sodium acrylates vinyl isodecanoate crosspolymer
	Polyglyceryl-6 oleate, P. polycricinoleate	Sodium caproyl lactylate
	Polyglyceryl-6 stearate	Sodium carborner
	Polyglyceryl-8 oleate	Sodium cetyl sulfate
	Polyglyceryl-10 decaoleate	Sodium C12-15 pareth-15 sulfonate
40	Polyglyceryl-10 diisostearate	Sodium isostearyl lactylate
	Polyglyceryl-10 dioleate, P. dipalmitate	Sodium laureth-17 carboxylate
	Polyglyceryl-10 distearate, P. isostearate	Sodium lauroyl lactylate
	Polyglyceryl-10 laurate, P. linoleate	Sodium lauryl sulfate
	Polyglyceryl-10 mixed fatty acids	Sodium nonoxynol-6 phosphate
45	Polyglyceryl-10 myristate	Sodium octyl sulfate
	Polyglyceryl-10 oleate	Sodium oleate
	Polyglyceryl-10 pentastearate	Sodium oleyl sulfate
	Polyglyceryl-10 stearate	Sodium phosphate
	Polyglyceryl-10 tetraoleate	Sodium stearoyl lactylate
50	Polyglyceryl-10 trioleate	Sorbiteth-20
	Polyoxyethylene polyoxypropylene glycol	Sorbitan isostearate, S. laurate
	Polyquaternium-5, -31	Sorbitan oleate, S. palmitate
	Polysorbate 20, 21, 40, 60, 61	Sorbitan sesquiosostearate

	Sorbitan sesquioleate, S. sesquistearate	Eclipta alba extract
	Sorbitan stearate, S. triisostearate	Eucalyptus globulus oil
	Sorbitan trioleate, S. tristearate	Euphorium fortunei extract
5	Soyamidopropyl dimethylamine	Euterpe precatoria extract
	Soyamine	Hierochloe odorata extract
	Stearamide DEA	Kadsura heteroclita extract
	Stearamide DIBA-stearate	Ligustrum lucidum extract
	Stearamidoethyl diethylamine	Lysimachia foenum-graecum extract
10	Stearamidopropyl dimethylamine, lactate	Melaleuca bracteata extract
	Stearamidopropyl PG-dimonium chloride phosphate	Melaleuca hyperifolia extract
	Stearamine	Melaleuca symphyocarp extract
	Stearamine oxide	Melaleuca uncinata extract
15	Steareth-2, -4, -6, -7, -10, -11, -13	Melaleuca wilsonii extract
	Steareth-2 phosphate	Nasturtium officinale extract
	Steareth-15, -20, -21, -30, -100	Nelumbium speciosum extract
	Stearic acid	Paulownia imperialis extract
	Sucrose cocoate, S. distearate	Rosemary (Rosmarinus officinalis) oil
20	Sucrose stearate	Selinum spp. extract
	Sythetic beeswax	Trichomonas japonica extract
	Tallow glyceride, acetylated hydrogenated	Withania somnifera extract
	Tallowamide DEA	Yuzu oil
	Tallowamidopropyl dimethylamine	Ziziphus jujuba extract
	Talloweth-6	
25	Tetrasodium dicarboxyethyl stearyl sulfosuccinamide	<u>Exfoliant</u>
	TEA-acrylates/acrylonitrogens copolymer	Apricot (Prunus armeniaca) kernel powder
	Tissue extract	Glycolic acid
	Triceteareth-4 phosphate	Jojoba (Buxus chinensis) seed powder
30	Trideceth-3, -5, -6, -7, -8	Lactic acid Papain
	Trideceth-9, -10, -12, -15	PEG 11-Avocado Glycerides
	Tridecyl ethoxylate	Willow (Salix alba) bark extract
	Triethanolamine	
	Trilaureth-4 phosphate	<u>Fiber</u>
35	Triolein	Corn (Zea mays) cob powder
	Trisodium HEDTA	Nylon-66
	Tristearin	Oat (Avena sativa) bran, meal
		Rayon
	<u>Enzyme</u>	<u>Film former</u>
40	Fermented vegetable	Acetylated lanolin
	Ganoderma lucidum oil	Acrylates/hydroxyesters acrylates copolymer
	Lipase	Acrylate/octylarylamide copolymer
	Papain	Acrylate copolymer alkylated polyvinylpyrrolidone
	Soy (Glycine soja) protein	Ammonium acrylates/acrylonitrogens copolymer
45	Superoxide dismutase	Betaglucan
		Bladderwrack (Fucus vesiculosus) extract
		Carboxymethylchitosan
		N,O-Carboxymethylchitosonium
		Chitosan lactate
50	Brassica rapa-depressa extract	Collagen
	Caraway (Carum carvi) oil	Collagen phthalate
	Cardamon (Elettaria cardamomum) oil	Colloidal oatmeal
	Clove (Eugenia caryophyllus) oil	Desamido collagen

	Diisostearoyl trimethylolpropane siloxy silicate	Wheat peptide
	DMHF	
	Ethyl ester of hydrolyzed silk	
5	Ethylcellulose	
	Gellan gum	Fixative
	Glycerin/diethylene glycol/adipate crosspolymer	Acrylates copolymer
	High beta-glucan barley flour	Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer
	Hydrolyzed collagen	AMP-acrylates copolymer
10	Hydrolyzed keratin	Hydrolyzed zein
	Hydrolyzed oat protein	Methacrylol ethyl betaine/acrylates copolymer
	Hydrolyzed pea protein	Methyl rosinate
	Hydrolyzed reticulin	Polyquaternium-4, -10, -29
	Hydrolyzed RNA	PPG-20 methyl glucose ether
	Hydrolyzed silk	Sodium polystyrene sulfonate
15	Hydrolyzed soy protein	Flavor (aroma)
	Hydrolyzed wheat protein	Benzaldehyde
	Hydrolyzed wheat protein/dimethicone copolyol phosphate copolymer	Caraway (<i>Carum carvi</i>) oil
20	Hydrolyzed wheat protein/PVP copolymer	Cardamon (<i>Elettaria cardamomum</i>) oil
	Hydroxypropylcellulose	Cinnamon (<i>Cinnamomum cassia</i>) oil
	Hydroxypropyltrimonium gelatin	Clove (<i>Eugenia caryophyllus</i>) oil
	Jojoba (<i>Buxus chinensis</i>) oil	Ethyl vanillin
	Lactoglobulin	Eucalyptus <i>globulus</i> oil
25	Myristoyl hydrolyzed collagen	Flavor (aroma)
	Nitrocellulose	Glutamic acid
	Oat (<i>Avena sativa</i>) extract, protein	Glycyrrhetic acid
	Polyethylene, ionomer	Glycyrrhizic acid
	Polyquaternium-6, -7, -11, -22, -39	Glycyrrhizin, ammoniated
30	Polyvinyl acetate, P. alcohol	Methyl salicylate
	<hr/> PVM/MA decadiene crosspolymer	Orange (<i>Citrus aurantium dulcis</i>) oil
	PVP/Dimethiconylacrylate/polycarbamyl/polyglycol ester	Peppermint (<i>Mentha piperita</i>) oil
35	PVP/dimethylaminoethylmethacrylate copolymer	Rosemary (<i>Rosmarinus officinalis</i>) oil
	PVP/dimethylaminoethylmethacrylate/polycarbamyl/polyglycol ester	Sodium glycyrrhizinate
	PVP/eicosene copolymer	Thymol Vanillin
	PVP/hexadecene copolymer	Foam booster
40	PVP/hydrolyzed wheat protein copolymer	Alkyldimethylamine oxide
	Rice peptide	Babassuamidopropyl betaine
	Sericin	Babassuamidopropylamine oxide
	Shea butter (<i>Butyrospermum parkii</i>)	Caprylyl pyrrolione
	Shellac	Carageenan (<i>Chondrus crispus</i>)
45	Sodium C12-15 pareth-7 sulfonate	Cocamide DEA, C. MIPA
	Sodium hyaluronate	Cocamidopropyl betaine
	Souble collagen	Cocamidopropyl dimethylamine lactate
	Souble keratin	Cocamidopropyl hydroxysultaine
	Souble wheat protein	Coco-betaine
50	TEA-acrylates/acrylonitrogens copolymer	Coco/oleamidopropyl betaine
	Tosylamide/epoxy resin	Cocoyl amido hydroxy sulfo betaine
	Tricontanyl PVP	Cocoyl monoethanolamide ethoxylate
	Triethonium hydrolyzed collagen ethosulfate	DEA-hydrolyzed lecithin
		Dimethyl lauramine
		Disodium cocamido MEA-sulfosuccinate
		Disodium cocoamphodiacetate
		Disodium lauramido MEA-sulfosuccinate

	Disodium laureth sulfosuccinate	Ricinoleamide MEA
	Lauramide MIPA	Sesamide DEA
	Lauramidopropyl betaine	Wheat germamide DEA
	Lauryl betaine	
5	Myristamidopropyl dimethylamine dimethicone copolyol phosphate	<u>Foamer</u>
	Myristamine oxide	Ammonium laureth sulfate
	Octyldodecyl benzoate	Ammonium laureth-5 sulfate
	Oleamide DEA, O. MIPA	Ammonium laureth-12 sulfate
10	Oleyl betain	Ammonium lauryl sulfate, A.I. sulfosuccinate
	Palm kernelamide DEA	Ammonium myreth sulfate
	PEG-3 lauramine oxide	Ammonium nonoxynol 4 sulfate
	PPG-15 stearyl ether benzoate	Capryl caprylylglucoside
	PEG-7000	Cetyl betaine
15	Sodium cocoamphoacetate	Cocamide
	Sodium cocoyl isethionate	Cocamidopropyl dimethylamine
	Sodium laureth sulfate	Cocamidopropyl dimethylamine lactate
	Sodium lauroyl wheat amino acids	DEA-laureth sulfate
	Sodium octoxynol-2 ethane sulfonate	DEA lauryl sulfate
20	Soyamidopropyl betaine	Decyl glucoside
	Tallowamide MEA	Disodium caproamphodiacetate
	Foam stabilizer	Disodium caproamphodipropionate
	Babassuamidopropylamine oxide	Disodium caproamphodiacetate
25	Behenamine oxide	Disodium lauroamphodipropionate
	Caprylyl pyrrolidone	Disodium lauroamphodiacetate
	Cetamine oxide	Disodium lauroamphodipropionate
	Cocamide DEA, C. MEA, C. MIPA	Disodium lauroamphodiacetate
	Cocamidopropyl betaine	Disodium lauroamphodipropionate
30	Cocamidopropyl hydroxysultaine	Disodium oleamido MEA-sulfosuccinate
	Cocamidopropyl lauryl ether	Disodium oleamido MIPA-sulfosuccinate
	Cocamidopropylamine oxide	Disodium PEG-4 cocoamido MIPA- sulfosuccinate
	Cocamine oxide	Isostearamidopropylamine oxide
	Dihydroxyethyl C12-15 alkoxypropylamine oxide	Lauryl glucoside
35	Dihydroxyethyl cocamine oxide	Methyl gluceth-20
	Dihydroxyethyl tallowamine oxide	MEA-laureth sulfate
	Erucamidopropyl hydroxysultaine	Mixed isopropanolamines myristate
	Hydroxypropyl methylcellulose	MIPA-lauryl sulfate
	Isostearamide DEA	PEG-80 sorbitan laurate
40	Lauramide DEA, L. MEA	PEG lauryl ether sulfate
	Lauramido propylamine oxide	Potassium cocoate, P. lauryl sulfate
	Lauramine oxide	Quillaja saponaria extract
	Laureth-10	Sodium caproamphoacetate
	Lauric-linoleic DEA	Sodium capryloamphoacetate
45	Lauroyl-linoleoyl diethanolamide	Sodium capryloamphohydroxypropylsulfonate
	Lauroyl-myristoyl diethanolamide	Sodium cocoamphoacetate
	Lauryl pyrrolidone	Sodium cocoamphopropionate
	Linoleamide MEA	Sodium C12-15 pareth-25 sulfate
	Myristamide DEA, M. MEA	Sodium C12-15 pareth-3 sulfonate
50	Oleamide MEA	Sodium C12-15 pareth-15 sulfonate
	Palmitamide MEA	Sodium C14-16 olefin sulfonate
	PEG-3 lauramide	Sodium deceth sulfate
	PEG-4 oleamide	Sodium laureth-2 sulfate
		Sodium laureth-3 sulfate
		Sodium laureth-7 sulfate

	Sodium lauriminodipropionate	Algin
	Sodium laurylether sulfosuccinate	Aluminum distearate, A. tristearate
	Sodium lauryl sulfate, S.I. sulfoacetate	Ammonium acrylates/acrylonitrogens copolymer
	Sodium lauryl sulfosuccinate	Behenic acid
5	Sodium magnesium laureth sulfate	Calcium alginate
	Sodium myreth sulfate, S. myristyl sulfate	Carbomer
	Sodium trideceth sulfate	Carboxymethylchitosan
	Sodium tridecyl sulfate	N,O-Carboxymethylchitosonium
	TEA-dodecylbenzenesulfonate	Carrageenan (<i>Chondrus crispus</i>)
10	TEA-laureth sulfate	Ceresin
	TEA-lauroyl collagen amino acids	Cetearyl candelillate
	TEA-lauroyl keratin amino acids	Dibenzylidene sorbitol
	TEA-lauryl sulfate	Ethylene/acrylic acid copolymer
15	TEA-palm kernel sarcosinate	Ethylene/V/A copolymer
	Wheat germamidopropyl betain	Gellan gum
	Yucca vera extract	Hexanediol behenyl beeswax
	Fragrance	Hydrogenated jojoba oil
20	Chamaecyparis obtusa oil	Hydrogenated jojoba wax
	Orange (<i>Citrus aurantium dulcis</i>) oil	Hydroxystearic acid
	Peppermint (<i>Mentha piperita</i>) oil	Jojoba wax
	Phenethyl alcohol	Laneth-5, -15
	Fragrance solvent	Montmorillonite
25	Benzyl benzoate	Myreth-3-octanoate
	Diethyl phthalate	Octacosanyl stearate
	Triacetin	Oleth-3 phosphate
	Triethyl citrate	Oleth-10 phosphate
30	Fungicide	Poloxamer 105, 123, 124, 185, 235
	<i>Astrocaryum murumuru extract</i>	Poloxamer 237, 238, 338, 407
	<i>Azadirachta indica extract</i>	Polyethylene
	Captan	Polyethylene, oxidized
	Diiodomethyltolylsulfone	Polyquaternium-31
35	<i>Ficus racemosa extract</i>	Potassium alginate, P. chloride
	Hexetidine	Sodium nonoxynol-6 phosphate
	<i>Ligusticum jeholense extract</i>	Sodium tallowate
	<i>Mauritia flexosa extract</i>	Synthetic beeswax
	<i>Melaleuca symphyocarp extract</i>	TEA-acrylates/acrylonitrogens copolymer
40	<i>Melia australasica extract</i>	Tribehenin
	<i>Melia azadirachta extract</i>	Glosser
	<i>Mushroom (<i>Cordyceps sabolifera</i>) extract</i>	C18-36 acid glycol ester
	<i>Mushroom (<i>Coriolus versicolor</i>) extract</i>	Diphenyl dimethicone
	Sodium undecylenate	Methyl gluceth-10
45	<i>Tea tree (<i>Melaleuca alternifolia</i>) oil</i>	Octyldodecyl lactate
	Thiabendazole	Phenyl methicone, P. trimethicone
	Undecylenamide MEA	Polyglyceryl-2 dioleate
	Zinc undecylenate	Polyisobutene
50	<i>Ziziphus jujuba extract</i>	Polyisobutene/isohexapentacontahectane
	Gellant	Polyisobutene/isooctahexacontane
	Acrylic acid/acrylonitrogens copolymer	Polymethacrylamidopropyltrimonium chloride
	Agar	PPG-10 methyl glucose ether
		PPG-36 oleate
		Tea (<i>Camellia sinensis</i>) oil
		Tribehenin

	Hair care	
	Gentiana scabra extract	Dimethicone hydroxypropyl trimonium chloride
	Maidenhair fern extract	Dimethyl lauramine dimer dilinoleate
	Nicotinamide	Dioleylamidoethyl hydroxyethylmonium methosulfate
5	Nicotinic acid	Dimpalmitoylethyl hydroxyethylmonium methosulfate
	Paeonia lactiflorum extract	Diphenyl dimethicone
	Watercress (<i>Nasturtium officinale</i>) extract	Ditallowdimonium chloride
		N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride
		Entada phaseoloides extract
10	Hair conditioner	Ethyl ester of hydrolyzed animal protein
	Amino bispropyl dimethicone	Gelatin
	Amodimethicone	Ginseng hydroxypropyltrimonium chloride butylene glycol
	AMPD-isostearoyl hydrolyzed collagen	Hematin
	Aqua Ichthammol	Honey (Mel)
	Babassu (<i>Orbignya oleifera</i>) oil	Hydrolyzed collagen
15	Babassuamidopropalkonium chloride	Hydrolyzed hair keratin
	Behenamidopropyl dimethylamine	Hydrolyzed vegetable protein
	Behenamidopropyl hydroxyethyl dimonium chloride	Hydrolyzed wheat protein/dimethicone copolyol acetyl copolymer
	Behentrimonium chloride	Hydrolyzed wheat protein hydroxypropyl polysiloxane
20	Biotin	Hydroxyethyl cetyldimonium phosphate
	Bishydroxyethyl biscetyl malonamide	Hydroxypropyl trimonium hydrolyzed collagen
	Borageamidopropyl phosphatidyl PG-dimonium chloride	Hydroxypropyl trimonium hydrolyzed wheat protein polysiloxane copolymer
	Brazil nut (<i>Bertholetta excelsa</i>) oil	Hyssop (<i>Hyssopus officinalis</i>) extract
25	Cetearyl trimonium methosulphate	Inga edulis extract
	Cetrimonium bromide, C. chloride	Isostearamidopropylamine oxide
	Cetyl pyridinium chloride	Isostearoyl hydrolyzed collagen
	Chia (<i>Salvia hispanica</i>) oil	Keratin amino acids
	Chrysanthemum morifolium extract	Kiwi (<i>Actinidia chinensis</i>) fruit extract
30	Cinchona succirubra extract	Kola (<i>Cola acuminata</i>) extract
	Cocamidopropyl dimethylamine propionate	Laminaria japonica extract
	Coccinea indica extract	Laurtrimonium chloride
	Cocodimonium hydroxypropyl hydrolyzed collagen	Lauryl hydroxypropyl trimonium polysiloxane copolymer
35	Cocodimonium hydroxypropyl hydrolyzed keratin	Lauryldimethylamine isostearate
	Cocodimonium hydroxypropyl silk amino acids	Lauryldimonium hydroxypropyl hydrolyzed collagen
	Cocodimonium hydroxypropyl hydrolyzed wheat protein	Lauryldimonium hydroxypropyl hydrolyzed wheat protein
	Cocodimonium hydroxypropyloxyethyl cellulose	Linoleamidopropyl dimethylamine dimer dilinoleate
40	Cocotrimonium chloride	Linoleamidopropylidimethylamine
	Collagen amino acids	Lysimachia foenum-graecum extract
	Cyclomethicone	Melaleuca hyperifolia extract
	L-cysteine HCL	Ocimum sanctum extract
	Dibehenyldimonium methosulfate	Olealkonium chloride
45	Dicetyltrimonium chloride	Oleyl dimethylamidopropyl ethonium ethosulfate
	Dicocodimonium chloride	Palmitamidodecanediol
	Dihydroxyethyl tallowamine oleate	
	Dimethicone	
	Dimethicone copolyol acetate, D.c. almondate	
50	Dimethicone copolyol amine	
	Dimethicone copolyol bishydroxyethylamine	
	Dimethicon copolyol isostearate, D.c. laurate	
	Dimethicone copolyol olivate	

	Panthenyl ethyl ether	<u>Hair set resin polymer</u>
	Paulownia <i>imperialis</i> extract	Acrylates/acrylamide copolymer
	Peach (<i>Prunus persica</i>) leaf extract	Acrylates/PVP copolymer
5	PEG-2 cocomonium chloride	Acrylates/hydroxyesters acrylates copolymer
	PEG-120 jojoba acid/alcohol	Acrylates/octylarylamide copolymer
	PG-hydroxycellulose lauryldimonium chloride	AMP-acrylates copolymer
	PG-hydroxyethylcellulose cocodimonium chloride	Butylester of PVM-MA copolymer
	PG-hydroxyethylcellulose lauryldimonium chloride	Carboxylated vinylacetate terpolymer
10	PG-hydroxyethylcellulose stearyldimonium chloride	Diglycol/CHDM/isophthalates/SIP copolymer
	Phenyl trimethicone	Eclipta alba extract
	Phospholipids	Ethyl ester of PVM/MA copolymer
	Phytantriol	Hydroxypropyl chitosan
15	Polyoxyethylene polyoxypropylene glycol	Isopropyl ester of PVM/MA copolymer
	Polypropylene glycol	Octylacrylamide/acrylates/butylaminoethyl methacrylate copolymer
	Polyquaternium-4, -6, -7, -10	Polymethacrylamidopropyltrimonium chloride
	Polyquaternium-22, -28, -39	Polypropylene glycol oligosuccinate
	PPG-5-ceteth-10 phosphate	PVP
20	Propyltrimonium hydrolyzed collagen	PVP/dimethylaminoethylmethacrylate copolymer
	propyltrimonium hydrolyzed soy protein	PVP/Polycarbamyl polyglycol ester
	Quaternium-18, -75, -81, -82	PVP/VA copolymer
	Quaternium-79 hydrolyzed keratin	PVP/VA vinyl propionate copolymer
	Quaternium-79 hydrolyzed silk	Sodium polyacrylate
25	Sambucus nigra extract, oil	VA/butyl maleate/isobornyl acrylate copolymer
	Sesamidopropalkonium chloride	VA/crotonates/vinyl neodecanoate copolymer
	Silicone quaternium-1, -8	VA/crotonates/vinyl propionate copolymer
	Sodium cocoamphoacetate	VA/crotonates copolymer
	Sodium cocoyl hydrolyzed collagen	Vinyl caprolactam/PVP/ dimethylaminoethylmethacrylate copolymer
30	Sodium polystyrene sulfonate	
	N-Soya-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	<u>Hair sheen</u>
	Stearylum chloride	Maidenhair fern extract
	Stearalkonium chloride	Tetrabutoxypropyl methicone
35	Stearamidopropyl dimethylamine	<u>Hair waving</u>
	Steardimonium hydroxypropyl hydrolyzed wheat protein	Ammonium thioglycolate, A. thiolactate
	STeartrimonium chloride	Argania spinosa oil
	Steartrimonium hydroxyethyl hydrolyzed collagen	L-cysteine HCL
40	N-Staryl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Cystine
	Stenocalyx micalii extract	Diammonium dithiodiglycolate
	Sulfur	Dilauryl thiodipropionate
	Tallowbenzyldimethyl ammonium chloride, hydrogenated	Ethanolamine sulfite, E. thioglycolate
	Tallowtrimonium chloride	Ethanolamine thiolactate
	Tea (<i>Camellia sinensis</i>) oil	Glyceryl thioglycolate
	TEA-cocoyl hydrolyzed soy protein	Hydroxymethyl dioxoazabicyclooctane
	Thenoyl methionate	Jojoba esters
45	Trimethylsilylamodimethicone	Monoethanolamine thiolactate
	Wheat amino acids	Shea butter, ethoxylated
		Sodium thioglycolate
		Thioglycerin
		Thioglycolic acid
		Thiolactic acid

	<u>Humectant</u>	
5	Acetamide MEA	PEG-4
	Acetyl monoethanolamine	Polyamino sugar condensate
	6-(N-Acetyl amino)-4-oxyhexyltrimonium chloride	Potassium lactate
10	Adenosine phosphate	Propylene glycol
	Ammonium lactate	Propyltrimonium hydrolyzed collagen
	Atelocollagen	propyltrimonium hydrolyzed soy protein
	Calcium pantothenate	Propyltrimonium hydrolyzed wheat protein
15	Calcium stearoyl lactylate	Quaternium-22
	Carboxymethyl chitin	Rice (<i>Oryza sativa</i>) germ oil
	Carboxymethyl chitosan succinamide	Sea Salts (Maris sal)
	Chitosan PCA	Shea butter (<i>Butyrospermum parkii</i>)
	Cholesteryl hydroxystearate	Silk powder
20	Collagen amino-polysiloxane hydrolyzate	Sodium behenoyl lactylate
	Colloidal oatmeal	Sodium caproyl lactylate
	Copper PCA methylsilanol	Sodium cocoyl lactylate
	Dimethicone copolyol laurate	Sodium hyaluronate
	Dipotassium glycyrrhizinate	Sodium isostearoyl lactylate
25	Ethyl ester of hydrolyzed silk	Sodium lactate, S. lauroyl lactylate, S. PCA
	Fatty quaternary amine chloride complex	Sodium polyglutamate
	Glucos glutamate	Sodium stearoyl lactylate
	Glycereth-4,5-lactate	Sorbitan laurate
	Glycereth-7, -12, -26	Sorbitan sesquiosostearate
30	Glycerin	Sorbitol
	Honey extract	Sphingolipids
	Hydrogenated passion fruit oil	TEA-PCA
	Hydrolyzed casein	Urea
35	Hydrolyzed fibronectin	<u>Hydrotrope</u>
	Hydrolyzed glycosaminoglycans	Ammonium cumenesulfonate
	Hydrolyzed oat protein	Ammonium xylenesulfonate
	Hydrolyzed silk	Cetamine oxide
	Hydrolyzed soy protein	Cocamidopropylamine oxide
	Hydroxypropyl chitosan	Lauramine oxide
40	Hydroxypropyltrimonium hydrolyzed casein	Potassium toluenesulfonate
	Hydroxypropyltrimonium hydrolyzed silk	PPG-2-isodeceth-4, -6, -9, -12
	Hydroxypropyltrimonium hydrolyzed soy protein	Sodium cumene sulfonate
	Hydroxypropyltrimonium hydrolyzed wheat protein	Sodium laureth-13-carboxylate
45	Keratin amino acids	Sodium toluene sulfonate
	Lactamide DGA, MEA	Sodium xylene sulfonate
	Lactamidopropyl trimonium chloride	Trideceth-19-carboxylic acid
	Lactic acid	<u>Intermediate</u>
	Lactose	Caprylic acid
50	Lauroyl lysine	Deceth-3
	Maltitol	Diethyl succinate
	Mannitol	Dimethylaminopropylamine
	Methyl gluceth-10, -20	DM hydantoin
	Natto gum	Dodecylbenzene sulfonic acid
	Oat (<i>Avena sativa</i>) extract, protein	Ethylene dichloride
	Panthenol	4-Fluoro 3-nitro aniline
	Panthenyl ethyl ether	Lauramine
	PCA	Methyl benzoate, M. cocoate
		Methyl isostearate, M. laurate

	Methyl myristate, M. palmitate	Mango (<i>Mangifera indica</i>) oil
	Oleic acid	Mineral oil (<i>Paraffinum liquidum</i>)
	Ricinoleic acid	Mink oil
5	Tall oil acid	Monostearyl citrate
	Tallow acid	Neatsfoot oil
	Lathering agent	Oleostearine
	Ammonium cocoyl sarcosinate	Partially hydrogenated soybean oil
10	Ammonium C12-15 alkyl sulfate	PEG-2 stearate
	Ammonium lauroyl sarcosinate	PEG-4 dilaurate
	Cocamide MEA ethoxylate	PEG-5M
	Cocamidopropyl dimethylaminohydroxypropyl hydrolyzed collagen	PEG-9M
	Lauroyl sarcosine	PEG-23M
15	Myristoyl sarcosine	PEG-27 lanolin
	Sodium cocoyl sarcosinate	PEG-30 lanolin
	Sodium lauroyl sarcosinate	PEG-40 lanolin, P. stearate
	Sodium methyl cocoyl taurate	PEG-45M
	Sodium myristoyl sarcosinate	PEG-90M
20	TEA-cocoyl sarcosinate	PEG-160M
	TEA-lauroyl sarcosinate	PEG/PPG-17/6 copolymer
	Lubricant	Pentaerythrityl tetrapelargonate
25	Aluminum salt octenyl succinate	Petrolatum
	Amodimethicone	Phenethyl dimethicone
	Boron nitride	Phenyl methicone
	Calcium aluminum borosilicate	Polyacrylamidomethylpropane sulfonic acid
	Calcium stearate	Polybutane
	Caprylic/capric triglyceride	Polydimethicone copolyol
	Coceth-7 carboxylic acid	Polyglycerol ester of mixed vegetable fatty acids
30	Coconut (<i>Cocos nucifera</i>) oil	Polymethylsilsesquioxane
	Cyclomethicone	Potassium laurate, P. myristate
	Diisodecyl adipate	Potassium tallowate
	Diisostearyl fumarate	PPG-2 myristyl ether propionate
	Dimethicone copolyol	PPG-3 myristyl ether
35	Glyceryl isostearate, G. oleate	PPG-9-buteth-12
	Glyceryl polymethacrylate	PPG-11 stearyl ether
	Gold of Pleasure oil	PPG-12-buteth-16
	Hyaluronic acid	PPG-12-PEG-50 lanolin
	Hydrogenated coconut oil	PPG-14 butyl ether
40	Hydrogenated cottonseed oil	PPG-20 cetyl ether
	Hydrogenated palm oil	PPG-20-buteth-30
	Hydrogenated soybean/cottonseed oil	PPG-24-buteth-27
	Hydrogenated soybean oil	PPG-28-buteth-35
	Hydrogenated vegetable oil	PPG-36 oleate
45	Hydrolyzed oat flour	PPG-40 butyl ether
	Hydroxypropyl guar	Quaternium-79 hydrolyzed keratin
	Isodecyl stearate	Quaternium-79 hydrolyzed silk
	Isopropyl lanolate	Rice (<i>Oryza sativa</i>) starch
	Isostearyl diglyceryl succinate	Shea butter (<i>Butyrospermum parkii</i>) extract
50	Jojoba esters	Shorea stenoptera butter
	Lanolin oil	Silica
	Laureth-3 phosphate	Stearamide MEA, S. MEA-stearate
	Magnesium myristate, M. stearate	Stearoxytrimethylsilane
		Stearyl dimethicone
		Triisostearyl citrate

	Triolein	<i>Substantivity</i> — Dimethicone copolyol
	Trisodium HEDTA	bishydroxyethylamine, Dimethicone
	Triundecanoic	hydroxypropyl trimonium chloride,
5	Zinc laurate, Z. stearate	Trimethylsilylamodimethicone
	Miscellaneous	<i>Sunless tanning</i> — Acetyl tyrosine, Eclipta alba extract in white emulsion
	<i>Adhesion promoter</i> — Glycerin/diethylene glycol/adipate crosspolymer	<i>Tonic</i> — Kiwi (<i>Actinidia chinensis</i>) fruit extract, Matricaria (<i>Chamomilla recutita</i>) extract,
10	<i>Analgesic</i> — Glycol salicylate	Orange (<i>Citrus aurantium dulcis</i>) peel extract
	<i>Anesthetic</i> — Benzocaine	<i>Viscosity stabilizer</i> — Diisodecyl adipate
	<i>Anti-elastic</i> — Hydrolyzed <i>Ulva lactuca</i> extract	<i>Spreading agent</i> — Stearyl heptanoate
	<i>Anti-itching</i> — Sodium shale oil sulfonate	<i>Wound healing</i> — Comfrey (<i>Symphytum officinale</i>) leaf extract
	<i>Antiacid</i> — Magnesium hydroxide, Magnesium silicate, Simethicone	<i>Waterproofing agent</i> — PVP/eicosene copolymer, PVP/hexadecene copolymer, Tricontanyl PVP
15	<i>Antifoam</i> — Dimethicone silylate, Simethicone	
	<i>Antilipasic</i> — <i>Laminaria saccharina</i> extract	
	<i>Antipruritic</i> — Coal tar	Moisture barrier
	<i>Antispasmodic</i> — Garlic (<i>Allium sativum</i>) extract	Acrylates/octylarylamide copolymer
20	<i>Antiwrinkle</i> — Chinese hibiscus (<i>Hibiscus rosa-sinensis</i>) extract	Betaglucan
	<i>Barrier</i> — Glycerin/diethylene glycol/adipate crosspolymer	C16-18 alkyl methicone
	<i>Cell regeneration</i> — Glycoproteins, Hydrolyzed <i>Ulva lactuca</i> extract	Cholesterol
25	<i>Co-emulsifier</i> —	Glycolipids
	Cholesteryl/behenyl/octyldodecyl lauroyl glutamate, Isododecane	Isoeicosane
	<i>Colloid</i> — Gelatin	Isohexadecane
	<i>Cooling agent</i> — Menthyl PCA, Menthone glycerin acetal	Lanosterol
30	<i>Detoxifier</i> — Clover (<i>Trifolium pratense</i>) extract	Octyl pelargonate, O. stearate
	<i>Dye stabilizer</i> — Uric acid	Polyisobutene
	<i>Filler</i> — Mica	Polyisobutene/isoheptapentacontahectane
	<i>Fragrance stabilizer</i> — 2,2',4,4'-Tetrahydroxybenzophenone	Polyisobutene/isooctahexacontane
35	<i>Free radical scavenger</i> — Melanin	Silica silylate
	<i>IR filter</i> — <i>Corallina officinalis</i>	Trihydroxypalmitamidoxy propyl myristyl ether
	<i>Lanolin substitute</i> — PEG-80 jojoba acid/alcohol	Trimethylsiloxysilicate
	<i>Lipolytic</i> — <i>Gelidium cartilagineum</i>	
40	<i>Oxident</i> — Barium peroxide, Hydrogen peroxide, Urea peroxide	Moisturizer
	<i>Oxygen carrier</i> — Perfluorodecalin	Acetamidopropyl trimonium chloride
	<i>Peroxide stabilizer</i> — Phenacetin, Sodium stannate	Adenosine triphosphate
45	<i>Scalp stimulant</i> — Birch (<i>Betula alba</i>) leaf extract	Aesculus chinensis extract
	<i>Sebostatic</i> — <i>Laminaria saccharina</i> extract	Algae (<i>Ascophyllum nodosum</i>) extract
	<i>Shine enhancer</i> — Hydrolyzed wheat protein hydroxypropyl polysiloxane	Algae extract
	<i>Skin barrier lipid</i> — Ceramide 3, N(27-Stearoyloxy-heptacosanoyl) phytosphingosine	Aloe barbadensis, A.b. extract
50	<i>Skin clarifier</i> — Oat (<i>Avena sativa</i>) bran extract	Ammonium lactate
	<i>Skin purifier</i> — Birch (<i>Betula alba</i>) leaf extract	Amniotic fluid

	Bactri gasipaes extract	Evening primrose (<i>Oenothera biennis</i>) extract, oil
	Benincasa hispida extract	Galla sinensis extract
	Betaglucan	Ganoderma lucidum oil
	Betaine	Ginseng (<i>Panax ginseng</i>) extract
5	Borage (<i>Borago officinalis</i>) seed oil	Gleditsia sinensis extract
	Brazil nut (<i>Bertholettia excelsa</i>) extract, oil	Glycereth-12
	C10-30 cholesterol/lanosterol esters	Glyceryl alginate, G. collagenate
	Calcium pantothenate	Glyceryl polymethacrylate
10	Calcium protein complex	Glycolic acid
	Caprylic/capric triglyceride	Glycolipids
	Caprylic/capric/lauric triglyceride	Glycosaminoglycans
	Caprylic/capric/linoleic triglyceride	Glycosphingolipids
	Caprylic/capric/oleic triglycerides	Gnetum amazonicum extract
15	Cashew (<i>Anacardium occidentale</i>) nut oil	Grape (<i>Vitis vinifera</i>) seed oil
	Celastrus paniculata extract	Hazel (<i>Corylus avellana</i>) nut oil
	Ceramide 33 (liquid soy extract)	Honey extract
	Chia (<i>Salvia hispanica</i>) oil	Hyaluronic acid
	Chinese hibiscus (<i>Hibiscus rosa-sinensis</i>) extract	Hybrid safflower (<i>Carthamus tinctorius</i>) oil
	Chitin	Hydrogenated castor oil
20	Chitosan, C. PCA	Hydrogenated coconut oil
	Cholesteric esters	Hydrogenated cottonseed oil
	Cholesterol	Hydrogenated lecithin
	Cholesteryl/behenyl/octyldodecyl lauroyl glutamate	Hydrogenated palm oil
25	Cocodimonium hydroxypropyl hydrolyzed collagen	Hydrogenated polyisobutene
	Cocodimonium hydroxypropyl hydrolyzed silk	Hydrogenated soybean oil
	Cocodimonium hydroxypropyl hydrolyzed wheat protein	Hydrogenated soybean/cottonseed oil
30	Cocodimonium hydroxypropyl silk amino acids	Hydrogenated vegetable oil
	Collagen	Hydrolyzed carbolipoprotein
	Collagen amino acids, C. phthalate	Hydrolyzed collagen
	Copper aspartate, C. protein complex	Hydrolyzed elastin
	Corn (<i>Zea mays</i>) oil	Hydrolyzed fibronectin
35	Cottonseed (<i>Gossypium</i>) oil	Hydrolyzed glycosaminoglycans
	Crataegus cuneata extract	Hydrolyzed keratin
	Cucumber (<i>Cucumis sativus</i>) extract	Hydrolyzed milk protein
	Desamido collagen	Hydrolyzed oats
	Dicaprylyl maleate	Hydrolyzed pea protein
40	Diisocetyl dodecanedioate	Hydrolyzed placental protein
	Diisostearyl adipate	Hydrolyzed rice protein
	Dimethyl hyaluronate	Hydrolyzed transgenic collagen
	Dimethylsilanol hyaluronate	Hydrolyzed serum protein
	Diocetyldecyl dimer dilinoleate	Hydrolyzed silk
45	Diocetyldecyl dodecanedioate	Hydrolyzed sweet almond protein
	Dipentaerythritol fatty acid ester	Hydrolyzed wheat protein
	Dog rose (<i>Rosa canina</i>) hips extract	Hydroxyethyl chitosan
	Dog rose (<i>Rosa canina</i>) seed extract	Inositol
	Echitea glauca extract	Isodecyl salicylate
50	Elastin amino acids	Isostearyl hydrolyzed animal protein
	Embllica officinalis extract	Jojoba (<i>Buxus chinensis</i>) oil
	Ethyl minkate	Jojoba esters
	Eugenia jambolana extract	Keratin amino acids
		Kiwi (<i>Actinidia chinensis</i>) fruit extract
		Kola (<i>Cola acuminata</i>) extract
		Kukui (<i>Aleurites moluccana</i>) nut oil

	Lactamide DGA, L. MEA	Pfaffia spp. extract
	Lactic acid	Pistachio (<i>Pistacia vera</i>) nut oil
	Lactobacillus/whey ferment	Placental protein
	Lactococcus hydrolysate	Plankton extract
5	Lactoyl methylsilanol elastinate	Polyamino sugar condensate
	Lanolin alcohol	Polybutene
	Lauryl PCA	Polyunsaturated fatty acids
	Lecithin	Potassium DNA, P. lactate, P. PCA
	Lesquerella fendleri oil	PPG-8/SMDI copolymer
10	Liposomes	PPG-20 methyl glucose ether distearate
	Lysine PCA	Propylene glycol dicaprylate/dicaprate
	Macadamia ternifolia nut oil	Propylene glycol dioctanoate
	Magnesium aspartate	Pumpkin (<i>Cucurbita pepo</i>) seed oil
	Maltitol	Quinoa (<i>Chenopodium quinoa</i>) extract
15	Manganese aspartate	Rapeseed (<i>Brassica campestris</i>) oil
	Mango (<i>Mangifera indica</i>) oil	Rehmannia chinensis extract
	Mannan	Rice (<i>Oryza sativa</i>) bran oil
	Marine polyaminosaccharide	Rose Water
	Mauritella armata extract	Royal jelly extract
20	Maximilliana regia extract	Saccharide isomerase
	Meadowfoam (<i>Limnanthes alba</i>) seed oil	Saccharomyces lysate extract
	Melaleuca hypercifolia extract	Saccharomyces/soy protein ferment
	Methylsilanol elastinate, M. mannumonate	Safflower (<i>Carthamus tinctorius</i>) oil
	Milk amino acids	Selenium aspartate, S. protein complex
25	Mineral oil (<i>Paraffinum liquidum</i>)	Sericin
	Molybdenum aspartate	Serum albumin
	Mouriri apiranga extract	Sesame (<i>Sesamum indicum</i>) oil
	Natto gum	Shea butter (<i>Butyrospermum parkii</i>)
	Nelumbium speciosum extract	Shea butter (<i>Butyrospermum parkii</i>) extract
30	Neopentyl glycol dicaprate	Shorea stenoptera butter
	Oat (<i>Avena sativa</i>) protein	Silk amino acids
	Octyl hydroxystearate	Sodium carboxymethyl beta-glucan
	Ophiopogon japonicus extract	Sodium chondroitin sulfate
	Orange (<i>Citrus aurantium dulcis</i>) peel wax	Sodium DNA, S. hyaluronate
35	Palmetto extract	Sodium lactate, S. PCA
	Pantethine	Souble collagen
	Panthenyl ethyl ether	Souble transgenic elastin
	Paraffin	Soybean (<i>Glycine soja</i>) oil
	Partially hydrogenated soybean oil	Spherical cellulose acetate
40	peanut (<i>Arachis hypogaea</i>) oil	Spondias amara extract
	Pecan (<i>Carya illinoensis</i>) oil	Squalene
	PEG-4, -6, -8, -12	Stomach extract
	PEG-70 mango glycerides	Sunflower (<i>Helianthus annuus</i>) seed oil
	PEG-75 shea butter glycerides	Superoxide dismutase
45	PEG-75 shorea butter glycerides	Tissue extract
	PEG-100 stearate	Tocopheryl acetate, T. linoleate
	Pentaerythrityl	Tomato (<i>Solanum lycopersicum</i>) extract
	isostearate/caprate/caprylate/adipate	Tormentil (<i>Potentilla erecta</i>) extract
	Pentaerythrityl stearate/caprate/caprylate/adipate	Trehalose
50	Pentylene glycol	Triundecanoin
	Perfluoropolymethylisopropyl ether	Vegetable oil
	Petrolatum	Walnut (<i>Juglans regia</i>) oil
	Petroleum wax	Watercress (<i>Nasturtium officinale</i>) extract

	Wheat (<i>Triticum vulgare</i>) germ extract, germ oil	Glycol distearate, G. stearate
	Yarrow (<i>Achillea millefolium</i>) extract	Magnesium myristate
	Wheat amino acids	PEG-2 distearate, P. stearate
5	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)	PEG-2 stearate SE
	Yogurt filtrate	PEG-3 distearate
	Zinc aspartate	Propylene glycol myristate, P.g. stearate
	Ziziphus jujuba extract	Stearamide
	Naturilizer	
10	2-Aminobutanol	Stearamide DIBA-stearate
	Aminoethyl propanediol	Stearamide MEA
	Aminomethyl propanediol	Stearamide MEA-stearate
	Aminomethyl propanol	Stearamidopropyl dimethylamine lactate
	Ammonium carbonate	Stearyl stearate
15	Calcium hydroxide	Styrene homopolymer
	Diethanolamine	Styrene/acrylates copolymer
	Ethanolamine	Styrene/PVP copolymer
	Glucamine	Triisostearin PEG-6 esters
20	Isopropanolamine	Plasticizer
	Isopropylamine	Acetyl tributyl citrate
	2-Methyl-4-hydroxypyrrolidine	Acetyl triethyl citrate
	Morpholine	AMP-isostearoyl hydrolyzed wheat protein
	Sodium bromate	AMPD-isostearoyl hydrolyzed collagen
	Succinic acid	Cyclohexane dimethanol dibenzoate
25	Tetrahydroxypropyl ethylenediamine	Dibutyl phthalate
	Triethanolamine	Diethyl phthalate
	Tromethamine	Diethylene glycol dibenzoate
	Oil absorbent	
30	Hydrated silica	Diisopropyl sebacate
	Polymethyl methacrylate	Dimethicone copolyol
	Silicon dioxide hydrate	Dimethyl phthalate
	Walnut (<i>Juglans regia</i>) shell powder	Dipropylene glycol dibenzoate
	Ointment base	
35	Borage (<i>Borago officinalis</i>) seed oil	Ethyl ester of hydrolyzed keratin
	Caprylic/capric/stearic triglyceride	Glycerol tribenzoate
	Glyceryl cocoate	Glycol
	Hydrogenated coco-glycerides	Hydrolyzed serum protein
40	Lanolin	Isocetyl salicylate
	Mink oil	Isodecyl benzoate
	Oleostearine	Isoeicosane
	Tallow	Isopropyl lanolate
	Opacifier	
45	Barium sulfate	Isostearoyl hydrolyzed collagen
	C12-16 alcohols	Lauroyl hydrolyzed collagen
	Cetearyl octanoate	Marine collagen
	Cetyl myristate, C. palmitate	Monostearyl citrate
50	Cocamidopropyl lauryl ether	Neopentyl glycol dibenzoate
	Glyceryl distearate	Octyl benzoate, O. laurate
	Glyceryl hydroxystearate	PEG-60 shea butter glycerides
	Glyceryl myristate, G. stearate	Pentaerythrityl tetrabenzoate
		Polyoxyethylene glycol dibenzoate
		Polypropylene glycol dibenzoate
		PPG-12-PEG-50 lanolin
		PPG-20 cetyl ether
		PPG-20 lanolin alcohol ether
		Propylene glycol dibenzoate
		Propylene glycol myristyl ether acetate

	Rice (<i>Oryza sativa</i>) bran wax	Ethylene/VA copolymer
	Serum protein	Glycereth-26 phosphate
	Tosylamide/epoxy resin	Hyaluronic acid
	Triacetin	Hydrolyzed RNA
5	Tributyl citrate	Hydrolyzed wheat protein polysiloxane polymer
	Triethyl citrate	Hydroxypropyltrimonium hydrolyzed collagen
	Trimethyl pentanediol dibenzoate	Hydroxypropyltrimonium hydrolyzed wheat
	Trimethyllethanetribenzoate	protein
10	Polish	Laneth-40
	Acrylates copolymer	Lauryldimonium hydroxypropyl hydrolyzed soy
	Aluminum silicate	protein
	Neatsfoot oil	Methacrylol ethyl betaine/acrylates copolymer
	Tallow	Octylacrylamide/acrylates/butylaminoethyl
15	Polymer	methacrylate copolymer
	Acrylamide sodium acrylate copolymer	Oleth-2 phosphate
	Acrylates-VA crosspolymer	Oleth-5 phosphate
	Acrylates/acrylamide copolymer	PEG-3 lanolate
20	Acrylates/hydroxyesters acrylates copolymer	PEG-4 stearate
	Acrylates/octylacrylamide copolymer	PEG-5M
	Acrylates/steareth-20 methacrylate copolymer	PEG-7 glyceryl cocoate
	Adipic acid-epoxypropyl diethylenetriamine	PEG-8 glyceryl laurate
	copolymer	PEG-8/SMDI copolymer
25	Adipic acid/dimethylaminohydroxypropyl	PEG-9 castor oil
	diethylene triamine copolymer	PEG-9M
	Ammonium acrylates copolymer	PEG-11 babassu glycerides
	Ammonium acrylates/acrylonitrogens copolymer	PEG-12 palm kernel glycerides
	AMP-acrylates copolymer	PEG-12 stearate
30	AMP-isostearoyl hydrolyzed collagen	PEG-14 avocado glycerides
	Butylester of PVM-MA copolymer	PEG-15 glyceryl laurate
	Calcium carrageenan	PEG-20 corn glycerides
	Carboxylated vinylacetate terpolymer	PEG-20 evening primrose glycerides
	Ceteareth-2 phosphate	PEG-20 glyceryl oleate
35	Ceteareth-5 phosphate	PEG-23 oleate
	Ceteareth-10 phosphate	PEG-23M
	Ceteareth-29, -34	PEG-29 castor oil
	Coco-glucoside	PEG-42 babassu glycerides
	Cocodimonium hydroxypropoxyethyl cellulose	PEG-45 safflower glycerides
40	C12-13 pareth-4, -9, -23	PEG-45M
	DEA-ceteareth-2-phosphate	PEG-60 evening primrose glycerides
	DEA-oleth-5-phosphate	PEG-60 hydrogenated castor oil
	DEA-oleth-20-phosphate	PEG-75 castor oil
	Diglycol/CHDM/isophthalates/SIP copolymer	PEG-90M
45	Diisopropyl dimer dilinoleate	PEG-120 distearate
	Diisostearoyl trimethylolpropane siloxy silicate	PEG-150 lanolin
	Diisostearyl dimer dilinoleate	PEG-160M
	Dilinoleic acid	PG-hydroxy cellulose lauryldimonium chloride
	Dodecanedioic acid/cetearyl alcohol/glycol	PG-hydroxyethylcellulose cocodimonium chloride
	copolymer	PG-hydroxyethylcellulose stearylmonium
50	Eclipta alba extract	chloride
	Ethyl ester of PVM/MA copolymer	Polyethylene, ionomer
	Ethylene/acrylic acid copolymer	Polyethylene, micronized
		Polyethylene, oxidized
		Polyglyceryl-2 polyhydroxystearate

	Polymethacrylamidopropyltrimonium chloride	Tapioca dextrin
	Polyquaternium-6, -7, -10, -11, -22, -39	Zinc laurate
	Polysilicone-8	
5	Potassium alginate	
	Potassium lauroyl collagen amino acids	Powder, absorbent
	Potassium lauroyl hydrolyzed soy protein	Aluminum starch octenylsuccinate
	Potassium lauroyl wheat amino acids	Clays (white, yellow, red, green, pink)
	PPG-8/SMDI copolymer	Sorbitol
	PPG-12/SMDI copolymer	Tapioca
10	PPG-51/SMDI copolymer	
	PVM/MA decadiene crosspolymer	Preservative
	PVP/dimethylaminoethylmethacrylate copolymer	Alcohol
	PVP/VA copolymer	Ascorbic acid
15	Sodium cocoyl hydrolyzed wheat protein	Ascorbyl palmitate
	Steardimonium hydroxypropyl hydrolyzed wheat	Benzalkonium chloride
	protein	Benzethonium chloride
	Steareth-2 phosphate	Benzoic acid
	TEA-acrylates/acrylonitrogens copolymer	Benzyl alcohol
	Tosylamide/epoxy resin	Benzylparaben
20	Tosylamide/formaldehyde resin	5-Bromo-5 nitro-1,3-dioxane
	Trideceth-5, -6, -7, -8	2-Bromo-2-nitropropane-1,2-diol
	VA/butyl maleate/isobornyl acrylate copolymer	Butylparaben
	VA/crotonates/vinyl neodecanoate copolymer	Calcium propionate
	Vinyl caprolactam/PVP/	Cetrimonium bromide
25	dimethylaminoethylmethacrylate copolymer	Cetyl pyridinium chloride
	Wheat (<i>Triticum vulgare</i>) protein	Chloroxylenol
	Xanthan gum	Chlorphenesin
	Powder	o-Cymen-5-ol
30	Acrylates copolymer, spherical powder	Diazolidinyl urea
	Attapulgite	Dichlorobenzyl alcohol
	Boron nitride	Dichlorophene
	Calcium aluminum borosilicate	Diiodomethyltolylsulfone
	Calcium carbonate	Dimethyl hydroxymethyl pyrazole
35	Cellulose triacetate	Dimethyl oxazolidine
	Corn (<i>Zea mays</i>) cob powder, starch	Disodium EDTA
	Hydrogenated jojoba wax	DMDM hydantoin
	Magnesium carbonate, M. myristate	EDTA
	Magnesium stearate	Erythorbic acid
40	Mica	7-Ethylbicyclooxazolidine
	Microcrystalline cellulose	Ethylparaben
	Nylon-6	Fomistopsis officinalis oil
	Nylon powder	Formaldehyde
	Oat (<i>Avena sativa</i>) starch	Glutaral
45	Polyamide 12	Glyceryl laurate
	Polyethylene	HEDTA
	Polymethyl methacrylate	Hexamidine diisethionate
	Polymethylsilsesquioxane	Hexetidine
	PTFE	Imidazolidinyl urea
50	Silica	Isobutylparaben
	Silk powder	Isopropyl sorbate
	Spherical cellulose acetate	Isopropylparaben
	Talc	MDM hydantoin
		Methenammonium chloride
		Methyl paraben sodium

	Methylchloroisothiazolinone	Cocodimonium hydroxypropyl hydrolyzed wheat protein
	Methyl dibromo glutaronitrile	Cocoyl hydrolyzed collagen
	Methyl isothiazolinone	Collagen, C. phthalate
	Methylparaben	Collagen amino-polysiloxane hydrolyzate
5	Mushroom (<i>Cordyceps sabolifera</i>) extract	Deoxyribonucleic acid
	Myrtimonium bromide	Desamido collagen
	Pentasodium pentetate	Elastin amino acids
	Pentetic acid	Embryo extract
	Phenethyl alcohol	Ethyl ester of hydrolyzed animal protein
10	Phenol	Fibronectin
	Phenyl mercuric acetate	Gelatin
	o-Phenylphenol	Human placental protein
	Polyaminopropyl biguanide	Hydrolyzed collagen
	Polymethoxy bicyclic oxazolidine	Hydrolyzed extensin
15	Potassium sorbate	Hydrolyzed fish protein
	Propylparaben	Hydrolyzed hemoglobin
	Quaternium-15	Hydrolyzed keratin
	Salicylic acid	Hydrolyzed lactalbumin
	Sodium benzoate, S. bisulfate	Hydrolyzed milk protein
20	Sodium butylparaben, S. dehydroacetate	Hydrolyzed soy flour
	Sodium erythorbate, S. ethyl paraben	Hydrolyzed sweet almond protein
	Sodium hydroxymethylglycinate	Hydroxypropyltrimonium hydrolyzed collagen
	Sodium metabisulfite, S. methylparaben	Isostearoyl hydrolyzed collagen
	Sodium o-phenylphenate	Keratin
25	Sodium propionate, S. propylparaben	Lactoferrin
	Sodium pyrithione, S. salicylate	Lactoglobulin
	Sodium sulfite	Lauryldimonium hydroxypropyl hydrolyzed collagen
	Sorbic acid	Marine collagen
	Tetrasodium EDTA	Methylsilanol elastinate
30	Thimerosal	Potassium abietoyl hydrolyzed collagen
	Thymol	Potassium cocoyl hydrolyzed collagen
	Tris (hydroxymethyl) nitromethane	Potassium myristoyl hydrolyzed collagen
	Trisodium EDTA, T. HEDTA	Potassium oleoyl hydrolyzed collagen
	Usnic acid	Potassium undecylenoyl hydrolyzed collagen
35	Zinc PCA	Propyltrimonium hydrolyzed collagen
	Propellant	Propyltrimonium hydrolyzed soy protein
	Butane	Propyltrimonium hydrolyzed wheat protein
	Dimethyl ether	Protein hydrolysates
40	Hydrofluorocarbon 152a	Quaternium-79 hydrolyzed keratin
	Isobutane	Quaternium-79 hydrolyzed silk
	Propane	Rice peptide
	Protein	RNA
45	Albumen	Serum albumin, S. protein
	Atelocollagen	Silk powder
	Bletia hyacinthina extract	Sodium caseinate
	Chrysanthemum morifolium extract	Sodium cocoyl hydrolyzed collagen
	Cocodimonium hydroxypropyl hydrolyzed collagen	Sodium cocoyl hydrolyzed soy protein
50	Cocodimonium hydroxypropyl hydrolyzed keratin	Sodium myristoyl hydrolyzed collagen
	Cocodimonium hydroxypropyl hydrolyzed soy protein	Sodium oleoyl hydrolyzed collagen
		Sodium stearoyl hydrolyzed collagen
		Sodium undecylenoyl hydrolyzed collagen

	Sodium/TEA-lauroyl hydrolyzed collagen	Magnesium sulfate hepta-hydrate
	Sodium/TEA-lauroyl hydrolyzed keratin	Octyldodecyl behenate, O. myristate
	Soluble collagen	bis-Octyldodecyl stearoyl dimer dilinoleate
	Soluble keratin	Octyldodecyl stearoyl stearate
5	Soluble wheat protein	Octyl hydroxystearate
	Soy (Glycine soja) protein	PEG-3 stearate
	Stearidimonium hydroxypropyl hydrolyzed collagen	PEG-4 oleamide
10	Steartrimonium hydroxyethyl hydrolyzed collagen	PEG-6 capric/caprylic glycerides
	TEA-cocoyl hydrolyzed collagen	PEG-7 glycetyl cocoate
	TEA-cocoyl hydrolyzed soy protein	PEG-16
	TEA-lauroyl collagen amino acids	Propylene glycol dipelargonate
	TEA-lauroyl keratin amino acids	
15	Trachea hydrolysate	
	Triethonium hydrolyzed collagen ethosulfate	Resin
	Wheat (Triticum vulgare) germ extract, protein	Acrylates/hydroxyesters acrylates copolymer
	Wheat amino acids	Ethylene vinyl acetate
	Wheat peptide	Glyceryl abietate
20	Wheat protein	Methacrylol ethyl betaine/acrylates copolymer
	Protein, hydrolyzed	4-Methyl benzenesulfonamide
	Ethyl ester of hydrolyzed silk	Polypropylene
	Hydrolyzed casein	Polyquaternium-16, -44
	Hydrolyzed elastin	Sucrose benzoate
25	Hydrolyzed mushroom (Tricholoma matsutake) extract	
	Hydrolyzed pea protein	Sequestrant
	hydrolyzed rice protein	Calcium acetate, C. phosphate, C. sulfate
	Hydrolyzed serum protein	Encapsulation and entrapment systems
30	Hydrolyzed silk	Pentasodium triphosphate
	Hydrolyzed soy protein	Phosphoric acid
	Hydrolyzed vegetable protein	Potassium phosphate, P. sodium tartrate
	Hydrolyzed wheat protein	Silicon dioxide hydrate
35	Hydroxypropyltrimonium hydrolyzed casein	Sodium citrate, S. gluconate
	Hydroxypropyltrimonium hydrolyzed silk	Sorbitol
	Hydroxypropyltrimonium hydrolyzed soy protein	Tartaric acid
	Hydroxypropyltrimonium hydrolyzed wheat protein	Tripotassium EDTA
40	Reducing agent	Trisodium NTA
	Dimyristyl thiodipropionate	
	Hydrolyzed zein, iodized	Silicone
	Hydrolyzed zein, sulfurized	Amino bispropyl dimethicone
	Zinc formaldehyde sulfoxylate	Ammonium dimethicone copolyol sulfate
45		Amodimethicone
	Refatting agent	Behenoxy dimethicone
	Caprylic/capric triglyceride PEG-4 esters	C16-18 alkyl methicone
	Cocamide MIPA	Cetyl dimethicone copolyol
	Diisostearyl dimer dilinoleate	Cyclomethicone
50	Hydrogenated palm kernel glycerides	Diisodecyl adipate
	Isostearyl erucate, I. isostearate	Diisostearoyl trimethylolpropane siloxy silicate
	Lecithin	Dimethicone
	Liposomes	Dimethicone copolyol
		Dimethicone copolyol almondate
		Dimethicone copolyol isostearate
		Dimethicone copolyol olivate, D.c. phthalate
		Dimethicone copolyolamine
		Dimethiconol fluoroalcohol dilinoleic acid
		Dimethiconol hydroxystearate, D. stearate

	Diphenyl dimethicone	Gelatin
	Disodium-PG-propyldimethicone thiosulfate	Ginseng hydroxypropyltrimonium chloride
	Isopropyl hydroxybutyramide dimethicone	butylene glycol
5	copoloyol	Glycolipids
	Methicone	Glycosphingolipids
	Octamethyl cyclotetrasiloxane	Gnetum amazonicum extract
	Phenyl methicone, P. trimethicone	Honey (Mel)
	Polyether Trisiloxane	Hydrolyzed carbolipoprotein
	Polymethylsilsesquioxane	Hydrolyzed elastin
10	Polysilicone-8	Hydrolyzed pea protein
	Quaternium-80	Hydrolyzed rice protein
	Silicone quaternium-1, -8	Hydrolyzed serum protein
	Sodium-PG-propyl thiosulfate dimethicone	Hydrolyzed silk
	Stearoxymethicone/dimethicone copolymer	Hydrolyzed soy protein
15	Trimethylsilylamodimethicone	Hydrolyzed vegetable protein
	Skin calming agent	Hydrolyzed wheat protein
	Cornflower (Centaurea cyanus) extract	Inga edulis extract
	Fennel (Foeniculum vulgare) extract	Kiwi (Actinidia chinensis) fruit extract
20	Fenugreek extract	Laminaria japonica extract
	Linden (Tilia cordata) extract	Lecithin
	Valerian (Valeriana officinalis) extract	Marsilea minuta extract
	Skin cleanser	Nettle (Urtica dioica) extract
25	Dog rose (Rosa canina) hips extract	Palmitamidodecanediol
	Papaya (Carica papaya) extract	Pearls (Margarita margarita)
	Peach (Prunus persica) extract	PEG-42 Ebiriko ceramides extract
	Rose (Rosa multiflora) extract	Phenyl trimethicone
	Willow (Salix alba) extract	Phytantriol
	Skin conditioner	Polygonum multiflorum extract
30		<hr/>
	Artemisia apiacea extract	Potassium cocoyl hydrolyzed collagen
	Astrocaryum tucuma extract	Retinyl palmitate polypeptide
	Bactris gasipaes extract	Salvia miltiorrhiza extract
35	Biotin	Silt
	Bishydroxyethyl biscetyl malonamide	Sodium cocoyl hydrolyzed collagen
	Bletia hyacinthina extract	Soluble transgenic elastin
	Borage (Borago officinalis) seed oil	Steartrimonium hydroxyethyl hydrolyzed collagen
	Borageamidopropyl phosphatidyl PG-dimonium	Stearyl methicone
40	chloride	Skin healing
	Carbocysteine	Calendula officinalis extract
	Catalpa kaempfera extract	Glycoproteins
	Coco phosphatidyl PG-dimonium chloride	Hydrocotyl (Centella asiatica) extract
	Cocodimonium hydroxypropyl hydrolyzed keratin	Oat (Avena sativa) extract
45	Collagen amino acids	Sandalwood (Santalum album) extract
	Cyclomethicone	Spearamint (Mentha viridis) extract
	Dimethicone, D. copolyol acetate	Skin lightening/whitening agent
	Emblica officinalis extract	Ascorbic acid polypeptide
	Equisetum arvense extract	Bearberry (Arctostaphylos uva-ursi) extract
50	Ethyl ester of hydrolyzed animal protein	Hydroquinone-beta-D-glucopyranoside
	Evening primrose (Oenothera biennis) oil	Lemon (Citrus medica limonum) peel extract
	Fomes fomentarius extract	Pearls (Margarita margarita)
	Fomistopsis officinalis oil	

	<u>Skin protectant</u>	
5	Acetylmethionyl methylsilanol elastinate Allantoin, A. aluminum hydroxide Aloe barbadensis, A.b. extract Aluminum starch octenylsuccinate Anise (Pimpinella anisum) extract Arnica montana extract Artemisia apiacea extract Ascorbyl methylsilanol pectinate Astrocaryum tucuma extract Bactris gasipaes extract Betaglucan Bishydroxyethyl biscetyl malonamide Bletia hyacinthina extract C18-70 Isoparaffin Calendula amurrensis extract Carboxymethyl chitin Carcinia cambogia extract Carrot (Daucus carota) extract Carrot (Daucus carota sativa) oil Catalpa kaempfera extract Chenopodium album extract Chitosan Chrysanthemum morifolium extract Collagen Corn poppy (Papaver rhoeas) extract Crataegus cuneata extract Crataegus monogyna extract Cypress (Cupressus sempervirens) extract Dimethicone Dimethiconol fluoroalcohol dilinoleic acid Dimethiconol hydroxystearate, D. stearate Dimethylsilanol hyaluronate Echites glauca extract Embryo extract Entada phaseoloides extract Equisetum arvense extract Euphorotium fortunei extract Euterpe precatoria extract Fenugreek extract fornistopsis officinalis oil, F. pinicola extract Galla sinensis extract Gentian (Gentiana lutea) extract Gleditsia sinensis extract Glyceryl ricinoleate Glycolipids Hierochloe odorata extract Hyaluronic acid Hydrogenated lecithin Hydrolyzed lupine protein Hydrolyzed milk protein Hydrolyzed mushroom (Tricholoma matsutake) extract	Isodecyl salicylate Jojoba (Buxus chinensis) oil Lady's Thistle (Silybum marianum) extract Laminaria japonica extract Ligusticum jeholense extract Liposomes Magnolis spp. extract Mango kernel oil marsilea minuta extract Melaleuca hypercifolia extract Melaleuca uncinata extract Melaleuca wilsonii extract Methylsilanol tri PEG-8 glyceryl cocoate Oat (Avena stiva) meal Oyster (Ostrea) shell extract Palmitamidodecanediol Pearls (Margarita margarita) Pentahydrosqualene Perluorodecalin Perfluoropolymethylisopropyl ether Petrolatum PEG-8/SMDI copolymer PEG-42 Ebiriko ceramides extract Pfaffia spp. extract Phospholipids Plankton extract Polygonum multiflorum extract Pongamol PPG-12/SMDI Copolymer PPG-51/SMDI Copolymer Propyltrimonium hydrolyzed collagen Quinoa (Chenopodium quinoa) extract, oil Salvia miltiorrhiza extract Sambucus nigra extract Shark liver oil Shorea robusta extract Sodium chondroitin sulfate Soluble transgenic elastin Steartrimonium hydroxyethyl hydrolyzed collagen Sterculia platanifolia extract Superoxide dismutase Trachea hydrolysate Wheat (Triticum vulgare) germ extract, protein White nettle (Lamium album) extract Withania somniferum extract Xanthozylum bungeanum extract Zinc oxide
10		
15		
20		
25		
30		
35		
40		
45		
50		
		<u>Skin smoothing agent</u>
		Althea officinalis extract Coltsfoot (Tussilago farfara) leaf extract Comfrey (Symphytum officinale) leaf extract

	Plantain (<i>Plantago major</i>) extract	Dimethyl octynediol
	Sericin	Dioleth-8 phosphate
	Skin softening	Glycereth-7 -26
5	Clays (white, yellow, red, green, pink)	Glyceryl caprylate, G. dilaurate
	Cucumber (<i>Cucumis sativus</i>) extract	Glyceryl caprylate/caprate
	Kelp (<i>Macrocystis pyrifera</i>) extract	Isoeicosane
	Peach (<i>Prunus persica</i>) extract	Isopropanolamine
	Phenethyl dimethicone	Isosteareth-20
10		Laneth-5, -15
	Skin soothing	Laureth-23
	Calendula officinalis extract	Methylated cyclodextrin
	Cherry bark extract	Myreth-3
	Cucumber (<i>Cucumis sativus</i>) extract	Myreth-3-octanoate
15	Garlic (<i>Allium sativum</i>) extract	Nonoxynol-10, -12, -14, -40, -50
	Hyssop (<i>Hyssopus officinalis</i>) extract	Octoxynol-11, -40
	Jasmine (<i>Jasminum officinale</i>) extract	Oleoamphohydroxypropylsulfonate
	Kelp (<i>Macrocystis pyrifera</i>) extract	Oleth-3, -5, -10, -15, -20, -25, -50
	Mango kernel oil	Oleth-20 phosphate
20	Meadowsweet (<i>Spiraea ulmaria</i>) extract	PEG-4, -6, -8, -12, -16, -20, -32, -40
	Quince (<i>Pyrus cydonia</i>) seed extract	PEG-4 dilaurate
	Slippery elm extract	PEG-6 capric/caprylic glycerides
	Valerian (<i>Valeriana officinalis</i>) extract	PEG-6 methyl ether
	Willow (<i>Salix alba</i>) extract	PEG-8 distearate
25	Witch hazel (<i>Hamamelis virginiana</i>) extract	PEG-12 laurate
		PEG-15 castor oil
		PEG-18 stearate
	Solubilizer	PEG-20 glyceryl isostearate, P.g. laurate
	Acetyl monoethanolamine	PEG-20 glyceryl oleate, P.g. stearate
30	Almond oil PEG-6 esters	PEG-20 methyl glucose sesquistearate
	2-Aminobutanol	PEG-20 sorbitan isostearate
	Aminoethyl propanediol	PEG-20 sorbitan triisostearate
	Aminomethyl propanediol, A. propanol	PEG-24 hydrogenated lanolin
	Apricot kernel oil PEG-6 esters	PEG-25 castor oil
35	Benzalkonium chloride	PEG-25 hydrogenated castor oil
	Butoxydiglycol	PEG-30 castor oil
	Butyl glucoside	PEG-30 glyceryl cocoate
	Butylene glycol	PEG-30 glyceryl isostearate
	Butyloctanol	PEG-30 glyceryl laurate
40	Capric-caprylic mono-diglyceride	PEG-30 glyceryl oleate
	Capryl caprylylglucoside	PEG-30 glyceryl stearate
	Caprylic/capric triglyceride	PEG-33 castor oil
	Caprylic/capric/linoleic triglyceride	PEG-35 castor oil
	Caprylic/capric/oleic triglycerides	PEG-36 castor oil
45	Caprylyl/capryl glucoside	PEG-40 castor oil
	Ceteareth-20	PEG-40 glyceryl laurate, P.g. stearate
	Ceteth-10	PEG-40 hydrogenated castor oil PCA isostearate
	Cetyl PPG-2 isodeceth-7 carboxylate	PEG-40 sorbitan diisostearate
	Cholesterol	PEG-45 palm kernel glycerides
50	Corn oil PEG-6 esters	PEG-48 hydrogenated castor oil
	Decaglycerol monodioleate	PEG-50 castor oil
	Diethanolamine	PEG-50 hydrogenated castor oil
	Dilaureth-10 phosphate	PEG-60 almond glycerides

	PEG-60 castor oil	Butyl acetate
	PEG-60 corn glycerides	n-Butyl alcohol
	PEG-60 glyceryl isostearate, P.g. stearate	Butyl myristate, B. stearate
	PEG-60 hydrogenated castor oil	Butylene glycol
5	PEG-60 lanolin	C9-11 isoparaffin
	PEG-70 mango glycerides	C10-11 isoparaffin
	PEG-75 lanolin	C10-13 isoparaffin
	PEG-75 shea butter glycerides	Caprylic alcohol
10	PEG-75 shorea butter glycerides	Castor (<i>Ricinus communis</i>) oil
	PEG-80 hydrogenated castor oil	Cetearyl octanoate
	PEG-80 jojoba acid/alcohol	Cetyl stearyl octanoate
	PEG-80 sorbitan laurate	Chlorobutanol
	PEG-100 castor oil	Decyl alcohol
	PEG-100 hydrogenated castor oil	Diethylene glycol
15	PEG-120 jojoba acid/alcohol	Diethylene glycol dibenzoate
	PEG-200 trihydroxystearin	Diethyl sebacate
	Poloxamer 407	Diisocetyl adipate
	Polyglyceryl-3 oleate	Diisopropyl adipate, D. sebacate
	Polyglyceryl-6 dioleate	Dimethyl phthalate
20	Polyglyceryl-10 decaoleate, P. tetraoleate	Dipropylene glycol
	Polysorbate 20, 60, 80	Dipropylene glycol dibenzoate
	PPG-2-isodeceth-4, -6, -9, -12	Ethoxydiglycol
	PPG-3 isosteareth-9	Ethyl acetate, E. lactate
	PPG-3 isoceteth-20 acetate	Ethyl myristate, E. oleate
25	PPG-5-ceteth-10 phosphate	2-Ethylhexyl isostearate
	PPG-5-ceteth-20	Glycerin
	PPG-6-decyltetradeceth-12, -20, -30	Glycofurool
	PPG-12-PEG-65 lanolin oil	Heptane
	PPG-15 stearyl ether	Hexyl alcohol
30	PPG-18 butyl ether	Hexylene glycol
	PPG-24 butyl ether	Isobutyl stearate
	PPG-26-buteth-26	Isocetyl salicylate
	PPG-33 butyl ether	Isodecyl benzoate, I. isononanoate
	PPG-33-buteth-45	Isodecyl octanoate, I. oleate
35	PPG-40-PEG-60 lanolin oil	Isododecane
	PPG-50 cetyl ether	Isoeicosane
	Propylene glycol dicaprylate, dicaprylate/dicaprate	Isohexadecane
	Ricinoleamide DEA	Isopropyl alcohol, I. myristate
40	Ricinolet-40	Isostearyl stearoyl stearate
	Sodium alpha olefin sulfonate	Laureth-2 acetate
	Sodium lauryl sulfate	Methoxydiglycol
	Sodium methylnaphthalenesulfonate	Methoxyisopropanol
	Triethanolamine	Methyl alcohol
45	Trioctanoin	Methyl propanediol
	Tromethamine	Methylene chloride
	Solvent	MEK
	Acetic acid	MIBK
50	Acetone	Morpholine
	Alcohol, A. denat	Octyl benzoate, O. isononanoate
	Benzophenone	Octyl laurate, O. palmitate
	Butoxydiglycol	Octyldodecyl lactate
		Olive oil PEG-6 esters
		Peanut oil PEG-6 esters

	Pentane	Hydroxyoctacosanyl hydroxystearate
	Petroleum distillates	Karaya (<i>Sterculia urens</i>) gum
	PEG-6 methyl ether	Laureth-3
	PEG-12	Maltitol
5	PEG-20 hydrogenated castor oil	Methylated cyclodextrin
	PEG-33 castor oil	Oleamide
	PEG-50 glyceryl cocoate	PEG-40 stearate
	Polyglyceryl-2 dioleate	PEG-40/dodecyl glycol copolymer
	Polyglyceryl-3 diisostearate	Perfluoropolymethylisopropyl ether
10	Polyoxyethylene glycol dibenzoate	Polyethylene paste
	Polypropylene glycol dibenzoate	PPG-5 lanolin wax
	PPG-2 myristyl ether propionate	PPG-7-buteth-10
	PPG-3	PPG-10 cetyl ether phosphate
	PPG-20 lanolin alcohol ether	Propylene carbonate, P. glycol alginate
15	Propyl alcohol	PVM/MA decadiene crosspolymer
	Propylene carbonate	Sodium acrylates/vinyl isodecanoate crosspolymer
	Propylene glycol	Sodium carboomer
	Propylene glycol dibenzoate	Sorbitan laurate
	Propylene glycol methyl ether	Stearic hydrazide
20	Propylene glycol myristate	2,2',4,4'-Tetrahydroxybenzophenone
	Pyridine	Tricaprin
	Sesame (<i>Sesamum indicum</i>) oil	Tricaprylin
	Stearyl heptanoate	Trilaurin
	Toluene	Trimyristin
25	Xylene	Tripalmitin
	SPF booster	Tristearin
	Borojoa sorbilis extract	Stimulant
	Isohexadecyl salicylate	Capsicum frutescens extract
30	Styrene/acrylates copolymer	Eleuthero ginseng (<i>Acanthopanax senticosus</i>) extract
	Titanium dioxide	Guarana (<i>Paullinia cupana</i>) extract
	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)	Lactococcus hydrolysate
	Stabilizer	Methylsilanol elastinate
35	Acrylates-V-A crosspolymer	Methylsilanol hydroxyproline aspartate
	Acrylates/ceteth-20 methacrylates copolymer	TEA-hydroiodide
	Acrylates/steareth-20 methacrylate copolymer	Tocopheryl nicotinate
	Acrylates/vinyl isodecanoate crosspolymer	Urocanic acid
	Alkyldimethylamine oxide	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)
40	C10 polycarbamyl polyglycol ester	Zedoary (<i>Curcuma zedoraria</i>) oil
	Calcium alginate	Zinc DNA
	Cocamidopropyl dimethylamine lactate	Sunscreen
	Cocamine oxide	Basil (<i>Basilicum santum</i>) oil extract
	Colloidal silica sols	Basil (<i>Ocimum basilicum</i>) extract
45	Cyclodextrin	Benzophenone-3 -4
	Disodium EDTA	3-Benzylidene camphor
	Gellan gum	Borojoa sorbilis extract
	Glyceryl diisostearate, G. stearate SE	C12-15 alkyl benzoate
	Glyceryl mono-di-tri-caprylate	Coffee (<i>Coffea arabica</i>) bean extract
50	Hydrogenated coco-glycerides	Ethyl salicylate
	Hydrogenated C12-18 triglycerides	Glyceryl PABA
	Hydrogenated tallow glycerides	Homosalate
	Hydrolyzed oat flour	

	Hydroquinone-beta-D-glucopyranoside	Cocamidopropyl betaine, potassium salt
	Isoamyl p-methoxycinnamate	Cocamidopropyl betaine ammonium salt
	Isopropylbenzyl salicylate	Cocamidopropyl hydroxy sultaine
5	Job's tears (<i>Coix lacryma-jobi</i>) extract	Cocamidopropyl hydroxy sultaine, ammonium salt
	Menthyl anthranilate	Cocamidopropyl hydroxy sultaine, potassium salt
	Octyl dimethyl PABA, O. methoxycinnamate	Cocamidopropylamine oxide
	Octyl salicylate, O. triazole	Coceth-7 carboxylic acid
	Oryzanol	Coco-glucoside
10	Pansy (<i>Viola tricolor</i>) extract	Cocoamphodiacetate lauryl-laureth sulfate
	PEG-25 PABA	Cocoamphodiacetate lauryl sulfate
	Phenylbenzimidazole sulfonic acid	Cocoamphodiacetate trideceth sulfate
	Rice (<i>Oryza sativa</i>) bran oil	Coco phosphatidyl PG-dimonium chloride
	TEA-salicylate	N-Cocoyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate
15	Titanium dioxide	Cocoyl glutamic acid
	Sunscreen UVB	Cocoyl hydrolyzed soy protein
	Benzophenone-5	Cocoyl hydroxyethyl imidazoline
	Eclipta alba extract	C11-15 pareth-9, -12, -20, -30, -40
20	PEG-25 PABA	C12-13 pareth sulfate
	Steareth-100	C12-13 pareth-5 carboxylic acid
	Tridecyl salicylate	C12-15 pareth-12
	Surfactant	C14-15 pareth-8 carboxylic acid
25	Linoleamide DEA	DEA-oleth-5-phosphate
	PEG-20 almond glycerides	DEA-oleth-20-phosphate
	PEG-60 lanolin	Deceth-3, -6, -8
	PEG-75 lanolin	Decyltetradeceth-25
30	Alkyl dimethyl betaine	Diceteareth-10 phosphoric acid
	Alkyldimethylamine oxide	Dimethicone copolyol
	Ammonium cocoyl sarcosinate	Dimethicone copolyol almondate, D.c. isostearate
	Ammonium C12-15 alkyl sulfate	Dimethicone copolyol laurate, D.c. olivate
35	Ammonium dimethicone copolyol sulfate	Dimethicone copolyol phthalate
	Ammonium laureth-5 sulfate	Dimethicone copolyolamine
	Ammonium laureth-12 sulfate	Dimethicone propyl PG-betaine
	Ammonium laureth sulfate	Diocetyl dodeceth-2 lauroyl glutamate
	Ammonium lauroyl sarcosinate	Diocetyl dodeceth-5 lauroyl glutamate
40	Ammonium lauryl sulfate, A.I. sulfosuccinate	Diocetyl dodecyl lauroyl glutamate
	Ammonium myreth sulfate	Disodium capryloamphodiacetate
	Ammonium nonoxynol 4 sulfate	Disodium cocoamphodiacetate
	Azelamide MEA	Disodium hydrogenated tallow glutamate
	C20-40 alcohol ethoxylate	Disodium laneth-5 sulfosuccinate
45	C30-50 alcohol ethoxylate	Disodium lauramido MEA-sulfosuccinate
	C40-60 alcohol ethoxylate	Disodium laureth sulfosuccinate
	Calcium dodecylbenzene sulfonate	Disodium oleamido MIPA-sulfosuccinate
	Calcium laurate	Disodium oleamido PEG-2 sulfosuccinate
	Ceteareth-2 phosphate	Disodium oleth-3 sulfosuccinate
	Ceteareth-5 phosphate	Disodium ricinoleamido MEA-sulfosuccinate
50	Ceteareth-10 phosphate	Disodium tallamido MEA-sulfosuccinate
	Cetoleth-25	Disteareth-2 lauroyl glutamate
	Cetyl betaine, C. phosphate	Disteareth-5 lauroyl glutamate
	Cocamide MEA ethoxylate	Ethoxylated fatty alcohol
		Ethoxylated glycerol sorbitan saturated fatty acid ester

	Ethoxylated glycerol sorbitan unsaturated fatty acid ester	Polysiloxane-polyether copolymer
	Glycereth-25 PCA isostearate	Potassium cocoyl glycinate
5	Glycereth-26 phosphate	Potassium cocoyl hydrolyzed collagen
	glyceryl hydroxystearate	Potassium C9-15 phosphate ester
	Hydrogenated tallowoyl glutamic acid	Potassium lauroyl hydrolyzed collagen
	Isopropyl hydroxybutyramide dimethicone	Potassium lauryl sulfate
	coppolyol	Potassium myristoyl hydrolyzed collagen
	Lauramidopropyl betain	Potassium oleoyl hydrolyzed collagen
10	Laureth-1, -2, -3, -4, -7, -12, -16	Potassium palmitate
	Laureth-3 carboxylic acid, L. phosphate	Potassium undecylenoyl hydrolyzed collagen
	Laureth-5 carboxylic acid	PPG-2-isodeceth-4, -6, -9, -12
	Laureth-11 carboxylic acid	PPG-6 C12-18 pareth-11
	Lauroyl sarcosine	Protein hydrolysates
15	Lauryl dimethylamine cyclocarboxypropylolate	Quaternium-80
	Laryl hydroxyethyl imidazoline	Quillaja saponaria extract
	Linoleamide DEA	Raffinose laurate, R. myristate, R. oleate
	Magnesium laureth-8 sulfate	Raffinose palmitate, R. stearate
	Meroxapol 105, 171, 172	Ricinoleamidopropyl betain
20	MEA-lauryl sulfate	Silicone quaternium-1, -8, -9
	Mixed isopropanolamines myristate	Sodium alpha olefin sulfonate
	Myreth-7	Sodium cocoamphoacetate
	Myristoyl sarcosine	Sodium cocoyl hydrolyzed wheat protein
	Myristyl alcohol	Sodium cocoyl isethionate
25	Nonoxynol-7, -9, -13, -15	Sodium C12-13 sulfate
	Nonoxynol-10 carboxylic acid	Sodium C12-14 pareth-2 sulfate
	Octoxynol-10, -12	Sodium C12-15 pareth-3 sulfonate
	Octyldodeceth-10, -16	Sodium C12-15 pareth-7 carboxylate
	Oleoyl sarcosine	Sodium C12-15 pareth-7 sulfonate
30	Oleth-2 phosphate	Sodium C12-15 pareth-8 carboxylate
	Oleth-5 phosphate	Sodium C12-15 pareth-15 sulfonate
	Oleyl betaine	Sodium C12-18 alkyl sulfate
	Oleyl hydroxyethyl imidazoline	Sodium C13-17 alkane sulfonate
	Palmitamine oxide	Sodium C14-16 olefin sulfonate
35	Palmityl betaine	Sodium cetearyl sulfate
	PCA ethyl cocoyl arginate	Sodium cetyl oleyl sulfate
	PEG-7 hydrogenated castor oil	Sodium coco-tallow sulfate
	PEG-8 caprylic/capric glycerides	Sodium cocoyl glutamate
	PEG-8 laurate	Sodium cocoyl hydrolyzed collagen
40	PEG-8 stearate	Sodium cocoyl hydrolyzed soy protein
	PEG-15 glyceryl stearate	Sodium cocoyl sarcosinate
	PEG-25 glyceryl isostearate	Sodium dimethicone copolyol acetyl methyltaurate
	PEG-27 lanolin	Sodium hydrogenated tallow glutamate
	PEG-30 lanolin	Sodium isodecyl sulfate
45	PEG-40 castor oil	Sodium laureth-5 carboxylate
	PEG-40 glyceryl stearate	Sodium laureth-11 carboxylate
	PEG-40 jojoba oil, P. lanolin	Sodium laureth-13-carboxylate
	PEG-60 glyceryl isostearate, P.g. stearate	Sodium laureth sulfate
	PEG-80 jojoba oil, P. sorbitan laurate	Sodium lauroamphoacetate
50	PEG-120 jojoba oil	Sodium lauroyl glutamate
	Pentasodium triphosphate	Sodium lauroyl hydrolyzed collagen
	Poloxamer 101, 122	Sodium lauroyl sarcosinate, S.I. taurate
	Polyglyceryl-2 dioleate	Sodium magnesium laureth sulfate

	Sodium methyl cocoyl taurate	Hydroxypropylcellulose
	Sodium methyl oleoyl taurate	Isobutylene/MA copolymer
	Sodium myristoyl glutamate	Magnesium aluminum silicate
5	Sodium myristoyl hydrolyzed collagen	Methylcellulose
	Sodium myristoyl sarcosinate	Pentasodium triphosphate
	Sodium myristyl sulfate	Polyethylene, P. micronized
	Sodium nonoxynol-6 phosphate	Propylene glycol alginate
10	Sodium octoxynol-2 ethane sulfonate	Quaternium-18 bentonite
	Sodium octyl sulfate	Quaternium-18 hectorite
	Sodium oleoyl hydrolyzed collagen	Sodium magnesium silicate
	Sodium stearoyl hydrolyzed collagen	Sodium polynaphthalenesulfonate
	Sodium trideceth sulfate	Stearalkonium bentonite, S. hectorite
	Sodium undecylenoyl hydrolyzed collagen	Steareth-10 allyl ether/acrylates copolymer (Astragalus gummifer) gum
15	Sodium/TEA-lauroyl hydrolyzed collagen	ribhenin
	Sodium/TEA-lauroyl hydrolyzed keratin	rihydroxystearin
	Sorbitan isostearate	omethamine magnesium aluminum silicate
	Stearoyl sarcosine	anthan gum
	Sulfated castor oil	
	TEA-cocoyl glutamate	
20	TEA-cocoyl hydrolyzed collagen	<u>Sweetener</u>
	TEA-cocoyl hydrolyzed soy protein	saccharin
	TEA-C12-15 alkyl sulfate	acid
	TEA-hydrogenated tallow glutamate	acid
	TEA-lauroyl glutamate	, ammoniated
25	TEA-lauroyl keratin amino acids	corn starch
	TEA-lauroyl sarcosinate	
	TEA-lauryl sulfate	
	TEA-myristoyl hydrolyzed collagen	
	Tocophereth-5 -10 -18 -20 -30 -50 -70	
30	Trideceth-7 carboxylic acid	
	Trideceth-9	
	Trideceth-19-carboxylic acid	saccharin
	Tridecyl ethoxylate	
	Triethanolamine C10-14 sulfate	
35	Trilauryl phosphate	
	Wheat germamidopropyl betaine	
	Yucca vera extract	
	<u>Suspending agent</u>	<u>accelerator</u>
40	Acrylates/ceteth-20 methacrylates copolymer	tyrosine
	Acrylates/steareth-20 methacrylate copolymer	Carrot (Daucus carota) extract
	Algin	acetyl tyrosinate methylsilanol
	Bentonite	droxyacetone
	C10 polycarbamyl polyglycol ester	mallyl tyrosinate
45	Calcium alginate	alba extract in white emulsion
	Carbomer, C. 934	tyrosinate
	Carrageenan (Chondrus crispus)	
	Cellulose gum	<u>ckener</u>
	Cetyl hydroxyethylcellulose	-VA crosspolymer
50	Dihydrogenated tallow phthalic acid amide	/C10-C30 alkyl acrylate crosspolymer
	Distearyl phthalic acid amide	/ceteth-20 itaconate copolymer
	Guar (Cyanopsis tetragonoloba) gum	/ceteth-20 methacrylates copolymer
	Hectorite	/steareth-20 itaconate copolymer
		/steareth-20 methacrylate copolymer
		/steareth-50 acrylate copolymer
		/vinyl isodecanoate crosspolymer
		acid/acrylonitrogen copolymer

	/magnesium hydroxide stearate	Hydrogenated rapeseed oil
	acrylates/acrylonitrogens copolymer	Hydrogenated starch hydrolysate
	alginate	Hydrogenated talloweth-60 myristyl glycol
5	alcohol	Hydrolyzed oat flour
	acid	Hydrolyzed transgenic collagen
	alcohol, B. behenate	Hydroxyethylcellulose
	nite	
10	olycarbamyl polyglycol ester	
	5 alcohols	
	6 alcohols	
	6 acid	
	Calcium alginate	
	Calcium carrageenan	
15	Caprylic alcohol	
	Carbomer	
	Carboxymethyl hydroxyethylcellulose	
	Carrageenan (<i>Chondrus crispus</i>)	
	Cellulose, C. gum	
20	Cetearyl alcohol, C. behenate	
	Cetearyl octanoate, C. stearate	
	Cetostearyl stearate	
	Cetyl alcohol	
	Cetyl hydroxyethylcellulose	
25	Cetyl myristate, C. palmitate	
	Cocamide	
	Cocamide MEA, C. MIPA	
	Cocamidopropylamine oxide	
	Coco-betaine	
30	Coco-rapeseedate	
	Coco/oleamidopropyl betaine	
	Cocoyl amido hydroxy sulfo betaine	
	Cocoyl monoethanolamide ethoxylate	
	Colloidal silica sols	
35	DEA-hydrolyzed lecithin	
	DEA-linoleate	
	DEA-oleth-3 phosphate	
	DEA oleth-10 phosphate	
	Decyl alcohol	
40	Dextran	
	Dextrin	
	Dilaureth-10 phosphate	
	Dioleth-8 phosphate	
	DMHF	
45	Ethoxylated fatty alcohol	
	Gellan gum	
	Glyceryl behenate, G. stearate	
	Glyceryl polymethacrylate	
	Guar (<i>Cyanopsis tetragonoloba</i>) gum	
50	Guar hydroxypropyltrimonium chloride	
	Hectorite	
	Hexyl alcohol	
	Hydrated silica	

	Hydroxypropyl chitosan	PEG-100 stearate
	Hydroxypropyl guar	PEG-120 methyl glucose dioleate
	Hydroxypropyl methylcellulose	PEG-150 distearate
	Hydroxypropylcellulose	PEG-150 pentaerythrityl tetrastearate
5	Isoceteth-10	PEG-160M
	Isostearamide DEA	PEG-200 glyceryl stearate
	Isostearamidopropylamine oxide	PEG-200 glyceryl tallowate
	Isostearoamphopropionate	Pentaerythrityl tetrabehenate
	Jojoba wax	Pentaerythrityl tetrastearate
10	Karaya (<i>Stericulia urens</i>) gum	Poloxamer 105, 124, 185, 237, 238, 338, 438
	L_____ DEA, L. MEA, L. MIPA	Polyacrylic acid
	L_____ midopropyl betaine	Polysorbate 20
	Laureth-10	Potassium alginate, P. chloride
	L_____ -linoleic DEA	Potassium oleate, P. stearate
15	L_____ -linoleoyl diethanolamide	PPG-5-ceteth-10 phosphate
	L_____ -myristoyl diethanolamide	Propylene glycol stearate
	L_____ alcohol, L. betaine	PVM/MA decadiene crosspolymer
	L_____ amide DEA, L. MEA	PVP
	L_____ eic acid	Quaternium-18 bentonite
20	L_____ mic acid	Quaternium-18 hectorite
	L_____ bean (<i>Ceratonia siliqua</i>) gum	Rapeseed oil, ethoxylated high erucic acid
	Magnesium aluminum silicate	Ricinoleamide MEA
	MDM hydantoin	Sesamide DEA
	Methylcellulose	Sodium acrylates/vinyl isodecanoate crosspolymer
25	Montmorillonite	Sodium carbomer, S. carrageenan
	Myristamide DEA, M. MEA	Sodium ceteth-13-carboxylate
	Myristamine oxide	Sodium chloride
	Myristyl alcohol	Sodium magnesium silicate, S. stearate
	Octacosanyl stearate	Sorbitan sesquisostearate, S. tristearate
30	Oleamide, O. DEA, O. MEA	Soyamide DEA
	Palmitamide MEA	Soyamidopropyl betaine
	Pectin	Starch polyacrylonitrile copolymer-potassium
	PEG-2 laurate	Starch polyacrylonitrile copolymer-sodium
	PEG-3 distearate, P. lauramide	Stearalkonium bentonite, S. hectorite
35	PEG-3 lauramine oxide	Stearamide
	PEG-4 diisostearate, P. oleamide	Stearamide DEA, S. MEA, S. MEA-stearate
	PEG-5M	Stearamidopropyl dimethylamine lactate
	PEG-6 beeswax	Stearamine oxide
	PEG-7 hydrogenated castor oil	Steareth-10 allyl ether/acrylates copolymer
40	PEG-8	Stearic acid
	PEG-8 dioleate, P. distearate	Stearyl alcohol
	PEG-8 stearate	Synthetic beeswax
	PEG-9M	Tallowamide MEA
	PEG-12 beeswax	TEA-acrylates/acrylonitrogens copolymer
45	PEG-18 glyceryl oleate/cocoate	Tragacanth (<i>Astragalus gummifer</i>) gum
	PEG-23M	Tribehenin
	PEG-28 glyceryl tallowate	Trihydroxystearin
	PEG-40 jojoba oil	Tromethamine magnesium aluminum silicate
	PEG-45M	Wheat germamide DEA
50	PEG-50 tallow amide	Wheat germamidopropyl betain
	PEG-55 propylene glycol oleate	Xanthan gum
	PEG-75 stearate	
	PEG-90M	

Thixotrope

	Bentonite	<u>Vegetable oil</u>
	Hectorite	Apricot (<i>Prunus armeniaca</i>) kernel oil
	Sodium magnesium silicate	Avocado (<i>Persea gratissima</i>) oil
	Stearalkonium bentonite	Baobab oil
5		Calendula officinalis oil
	Toner	Chaulmoogra (<i>Taraktogenos kurzii</i>) oil
	Althea officinalis extract	Coconut (<i>Cocos nucifera</i>) oil
	Clover (<i>Trifolium pratense</i>) extract	Corn (<i>Zea mays</i>) oil
	Dog rose (<i>Rosa canina</i>) hips extract	Cottonseed (<i>Gossypium</i>) oil
10	Ginseng (<i>Panax ginseng</i>) extract	Gold of pleasure oil
	Horsetail extract	Grape (<i>Vitis vinifera</i>) seed oil
	Lemon bioflauonoids extract	Hazel (<i>Corylus avellana</i>) nut oil
	Meadowsweet (<i>Spiraea ulmaria</i>) extract	Hybrid sunflower (<i>Helianthus annuus</i>) oil
	Nettle (<i>Urtica dioica</i>) extract	Hydrogenated coconut oil
15	Rose (<i>Rosa multiflora</i>) extract	Hydrogenated cottonseed oil
	Rosemary (<i>Rosmarinus officinalis</i>) extract	Hydrogenated vegetable oil
	UVA absorber	Jojoba (<i>Buxus chinensis</i>) oil
	Benzophenone-1, -2, -3, -4, -6, -8, -9, -11, -12	Kukui (<i>Aleurites molaccana</i>) nut oil
20	Butyl methoxydibenzoylmethane	Macadamia ternifolia nut oil
	Corallina officinalis	Meadowfoam (<i>Limnanthes alba</i>) seed oil
	Isopropyl dibenzoylmethane	Mexican poppy oil
	Menthyl anthranilate	Palm (<i>Elaeis guineensis</i>) kernel oil
	2,2',4,4'-Tetrahydroxybenzophenone	Partially hydrogenated soybean oil
25	Titanium dioxide	Peach (<i>Prunus persica</i>) kernel oil
	Zinc oxide	Peanut (<i>Arachis hypogaea</i>) oil
	UVB abosrber	Pecan (<i>Carya illinoensis</i>) oil
	Argania spinosa oil	Pumpkin (<i>Cucurbita pepo</i>) seed oil
30	Benzophenone-1 -2 -3 -4 -6 -9 -11	Quinoa (<i>Chenopodium quinoa</i>) oil
	Corallina officinalis	Rapeseed (<i>Brassica capestris</i>) oil
	DEA-methoxycinnamate	Rice (<i>Oryza sativa</i>) bran oil
	Drometrizole	Safflower (<i>Carthamus tinctorius</i>) oil
	Ethyl dihydroxypropyl PABA	Seabuckthorn oil
35	Etocrylene	Sesame (<i>Sesamum indicum</i>) oil
	homosalate	Sisymbrium irio oil
	Isoamyl p-methoxycinnamate	Soybean (<i>Glycine soja</i>) oil
	Isopropyl methoxycinnamate	Sunflower (<i>Helianthus annuus</i>) seed oil
	Isopropylbenzyl salicylate	Walnut (<i>Juglans regia</i>) oil
40	4-Methylbenzylidene camphor	Wheat (<i>Triticum vulgare</i>) germ oil
	Octocrylene	Wild borage oil
	Octrizole	
	Octyl dimethyl PABA	Vitamin
	Octyl methoxycinnamate	Aesculus chinensis extract
45	Octyl salicylate, O. triazne	Ascorbic acid
	PABA	Ascorbic acid polypeptide
	PEG-25 PABA	Ascorbyl palmitate
	Phenylbenzimidazole sulfonic acid	Biotin
	Shea butter, ethoxylated	Calcium pantothenate
50	TEA-salicylate	Cholecalciferol
	Titanium dioxide	Cyanocobalamin
	TriPABA panthenol	Eclipta alba extract
	Zinc oxide	Emblica officinalis extract
		Equisetum arvense extract
		Ergocalciferol

	Esculin	Spermaceti
	Ethyl linoleate	Stearoxymethicone/dimethicone copolymer
	Folic acid	Stearoxytrimethylsilane
5	Laminaria japonica extract	Synthetic candelilla wax
	Marsilea minuta extract	Synthetic carnauba
	Melaleuca bracteata extract	
	Menadione	
	Nasturtium sinensis extract	<u>Wetting agent</u>
10	Nelumbium speciosum extract	Benzalkonium chloride
	Niacin	Benzethonium chloride
	Niacinamide, N. ascorbate	Cetalkonium chloride
	Nicotinamide	Ceteareth-20
	Nicotinic acid	Ceteth-20
15	Ocimum basilicum extract	Cetyl pyridinium chloride
	Panthenyl triacetate	Cocoamphodipropionic acid
	Pantothenic acid	Decaglycerol monodioleate
	Phytonadione	Deceth-9
	Pyridoxine HCl	Dihydroabietyl methacrylate
	Retinol	Dimethicone copolyol methyl ether
20	Retinyl acetate, R. palmitate	Dimethicone copolyol phthalate
	Retinyl palmitate polypeptide	Diocetyl sodium sulfosuccinate
	Retinyl propionate	Ethyl hydroxymethyl oleyl oxazoline
	Riboflavin tetraacetate	Hydroxylated milk glycerides
	Sodium ascorbate	Islaureth-6
25	Thiamine HCL	Lanolin acid
	Tocopherol	Lauryl pyrrolidone
	Tocopheryl acetate, T. succinate	Lecithin
	Wax	Methyl hydrogenated rosinate
30	Bayberry (<i>Myrica cerifera</i>) wax	Methyl rosinate
	Behenoxy dimethicone	Nonyl nonoxynol-5
	C16-18 alkyl methicone	Octoxynol-8, 70
	Candelilla (<i>Euphorbia cerifera</i>) wax	Oleth-15
	Carnauba (<i>Copernicia cerifera</i>) wax	Oleth-20 phosphate
35	Ceresin	PEG-9 castor oil
	Cetyl dimethicone, C. isoctanoate	PEG-15 castor oil
	Dialkyldimethylpolysiloxane	PEG-20 glyceryl stearate
	Dimethiconol hydroxystearate	PEG-20 sorbitan triisostearate
	Dimethiconol stearate	PEG-45 palm kernel glycerides
40	Hydrogenated castor oil	PEG-60 almond glycerides, P. corn glyceride
	Hydrogenated cottonseed oil	PEG-60 shea butter glycerides
	Hydrogenated jojoba oil, H.j. wax	PEG-70 mango glycerides
	Hydrogenated palm kernel oil	PEG-75 shorea butter glycerides
	Hydrogenated rapeseed oil	PEG-80 sorbitan laurate
45	Hydrogenated rice bran wax	Poloxamer 123, 181, 182, 184, 235, 334
	hydrogenated vegetable oil	Polyether trisiloxane
	Isooctadecyl isononanoate	Polyglyceryl-3 oleate
	Japan (<i>Rhus succedanea</i>) wax	Polyglyceryl-6 dioleate
	Jojoba esters	Polyglyceryl-10 tetraoleate
50	Montan (Montan cera) wax	Polysorbate 60, 80
	Ouricury wax	PPG-2-isodeceth-4, -6, -9, -12
	Ozokerite	PPG-10 lanolin alcohol ether
	Polyglyceryl-3 beeswax	Propylene glycol
		Sodium butoxyethoxy acetate
		Sodium capryloamphohydroxypropylsulfonat

Sodium decyl diphenyl ether sulfonate
Sodium dodecyldiphenyl ether sulfonate
Sodium lauryl sulfate
Sulfated castor oil
5 Triisocetyl citrate
Triisostearin PEG-6 esters
Yucca vera extract

Claims:

1. A cosmetic composition comprising:
a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component randomly bonded to at least one poly(acrylic acid) component said polymer network capable of aggregation in response to a change in temperature; and
a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous-based medium.
- 10 2. A cosmetic composition for topical application, comprising:
a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and
15 a cosmetically active agent selected to treat imperfections or disorders of the skin, said carrier and said agent disposed within an aqueous-based medium.
3. The cosmetic composition of claim 1, wherein the cosmetic composition is a shampoo and the cosmetically active agent comprises a cleansing surfactant.
- 20 4. The cosmetic composition of claim 1, wherein the cosmetic composition is a moisturizer and the cosmetically active agent comprises a moisturizer.
5. The cosmetic composition of claim 1, wherein the cosmetic composition is a sunscreen and the cosmetically active agent comprises a UV-absorbing agent.
- 25 6. The cosmetic composition of claim 1, wherein the cosmetic composition is an acne cream and the cosmetically active agent comprises an antiacne agent.

7. The cosmetic composition of claim 1, wherein the cosmetic composition is a hair straightener and the cosmetic agent comprises a base for increasing the pH.

8. The cosmetic composition of claim 1, wherein the cosmetic composition
5 is a sunless tanning lotion and the cosmetically active agent comprises skin tinting agent.

9. The cosmetic composition of claim 1, wherein the cosmetic composition is an antiperspirant and the cosmetically active agent comprises aluminum
10 chlorhydrate.

10. The cosmetic composition of claim 1, wherein the cosmetic composition is a shaving cream and the cosmetically active agent comprises an emollient and a foaming surfactant.

15

11. The cosmetic composition of claim 1, wherein the cosmetic composition is a face cosmetic and the cosmetically active agent comprises a pigment.

12. The cosmetic composition of claim 1 or 2, wherein the cosmetic agent
20 comprises a hydrophobic material, wherein the cosmetically acceptable carrier stabilizes the hydrophobic material in the aqueous medium.

13. The cosmetic composition of claim 2, wherein said cosmetic agent selected to treat imperfections or disorders of the skin is selected from the group
25 consisting of acidulents, antiacne agents, anti-aging agents, anti-inflammatories, anti-irritants, antioxidants, depilatories, detergents, disinfectants, emollients, exfoliants, humectants, lubricants, moisturizers, skin conditioners, skin protectants, skin lightening agents, skin soothing agents, sunscreening agents, and tanning accelerators and mixtures thereof.

30

14. The composition of claim 4, wherein said composition further comprises a cosmetic agent selected from the group consisting of humectants and emollients.

15. The composition of claim 1 or 2, further comprising one or more additives selected from the group consisting of preservatives, abrasives, acidulents, antiacne agents, anti-agin agents, antibacterials, anticaking, anticaries agents, anticellulites, antidandruff, antifungal, anti-inflammatories, anti-irritants, antimicrobials, antioxidants, astringents, antiperspirants, antiseptics, antistatic agents, binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents, conditioners, deodorants, depilatories, detergents, dispersants, emollients, emulsifiers, enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glossers, hair conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers, powders, propellant, protein, refatting agents, sequestrant, silicones, skin calming agents, skin cleansers, skin conditioners, skin healing, skin lightening agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or fragrances.

16. The composition of claim 1, wherein the cosmetic composition takes a form selected from the group consisting of lotions, creams, sticks, roll-on formulations, mousses, sprays, aerosols, pad-applied formulations and masks.

25

17. The composition of claim 1, wherein the viscosification occurs at a temperature in the range of about 27-40°C.

18. The composition of claim 1, wherein the viscosification occurs at a temperature in the range of about 30 to 37°C.

19. The composition of claim 1, wherein said composition is formulated as a product selected from the group consisting of baby products, baby shampoos, lotions, powders and creams; bath preparations, bath oils, tablets and salts, bubble baths, bath fragrances, bath capsules; eye makeup preparations, eyebrow pencil, eyeliner, eye shadow, eye lotion, eye makeup remover, mascara; fragrance preparations, colognes, toilet waters, powders and sachets; noncoloring hair preparations, hair conditioner, hair spray, hair straighteners, permanent waves, rinses, shampoos, tonics, dressings and other grooming aids; color cosmetics; hair coloring preparations, hair dye, hair tints, hair color sprays, hair lighteners and hair bleaches; makeup preparations, face powders, foundations, leg and body paints, lipstick; makeup bases, rouges and makeup fixatives; manicuring preparations, basecoats, undercoats, cuticle softeners, nail creams, nail extenders, nail polish and enamel, and remover, oral hygiene products, dentrifices, mouthwashes; personal cleanliness, bath soaps, detergents, deodorants, douches and feminine hygiene products; shaving preparations, aftershave lotion, beard softeners, men's talcum shaving cream, shaving soap, preshave lotions; skin care preparations, skin cleansing preparations, skin antiseptics, depilatories, face and neck cleansers, body and hand cleansers, foot powders; moisturizers, night preparations, paste masks, skin fresheners; and suntan preparations, suntan creams, gels and lotions, and indoor tanning preparations.

20

20. The cosmetic composition of claim 1 or 2, wherein the poloxamer component is present in an amount in the range of about 0.01 to 20 wt% and the poly(acrylic acid) component is present in the amount of about 0.01 to 20 wt%.

25

21. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamers.

30

22. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamer components randomly bonded to a poly(acrylic acid) backbone.

23. The cosmetic composition of claim 1, wherein the reversibly viscosifying polymer composition comprises a plurality of poly(acrylic acid) components randomly bonded to a poloxamer component.

5 24. The cosmetic composition of claim 1, wherein the aqueous-based medium is selected from the group consisting of water, salt solutions and water with water-miscible organic compound(s).

10 25. The cosmetic compositions of claim 1, further comprising an additive selected to increase transition temperature and increase viscosity of the reversible viscosifying polymer network.

15 26. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature and decrease viscosity of the reversible viscosifying polymer network.

27. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature without affecting viscosity of the reversible viscosifying polymer network.

20 28. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature and increase viscosity of the reversible viscosifying polymer network.

25 29. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature and decrease viscosity of the reversible viscosifying polymer network.

30. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature without affecting viscosity of the reversible viscosifying polymer network.

5 31. The cosmetic composition of claim 1, further comprising an additive selected to increase viscosity without affecting transition temperature of the reversibly viscosifying polymer network.

10 32. The cosmetic composition of claim 1, further comprising an additive selected to decrease viscosity without affecting transition temperature of the reversibly viscosifying polymer network.

15 33. The cosmetic composition of claim 1 or 2, characterized in that the gel remains translucent to light before and after response to the environmental stimulus.

34. The cosmetic composition of claim 1, wherein the poly(acrylic acid) is branched.

20 35. Method of making a cosmetic composition, comprising:
dissolving a poloxamer capable of aggregation in response to a change in temperature in acrylic acid monomer;
initiating polymerization of the monomer to form a poly(acrylic acid) randomly bonded to the poloxamer, so as to form a reversibly viscosifying polymer composition;
mixing the reversibly gelling polymer compositions with a cosmetic agent
25 which imparts a desired cosmetic effect to the composition.

36. The method of claim 35, wherein a polymerization initiator is selected to provide the polymer network having a selected temperature of viscosification.

30 37. The method of claim 36, wherein one or more poloxamers are added.

38. The cosmetic composition of claim 1, wherein the reversibly viscosifying polymer network is present in an amount in the range of 0.01% - 10%.

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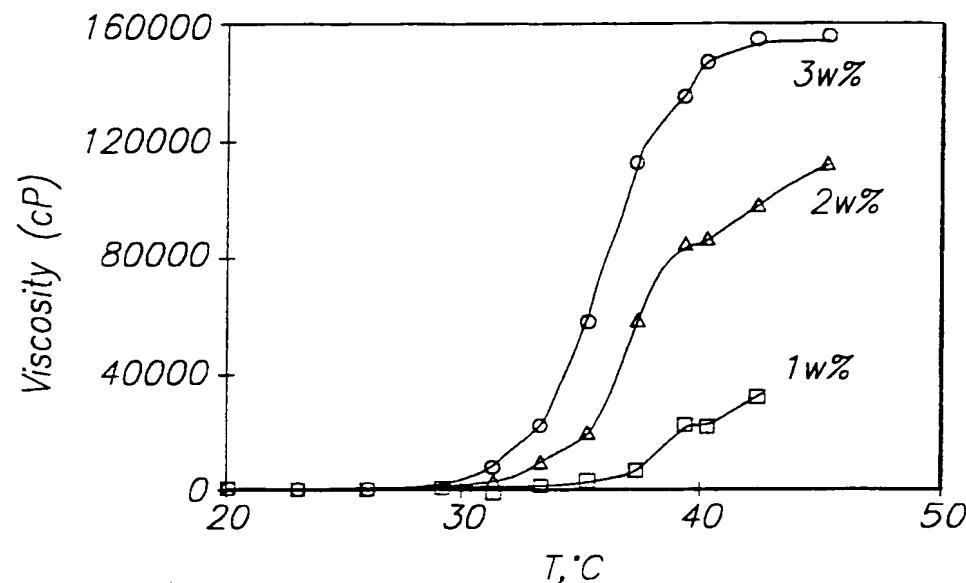


FIG. 1

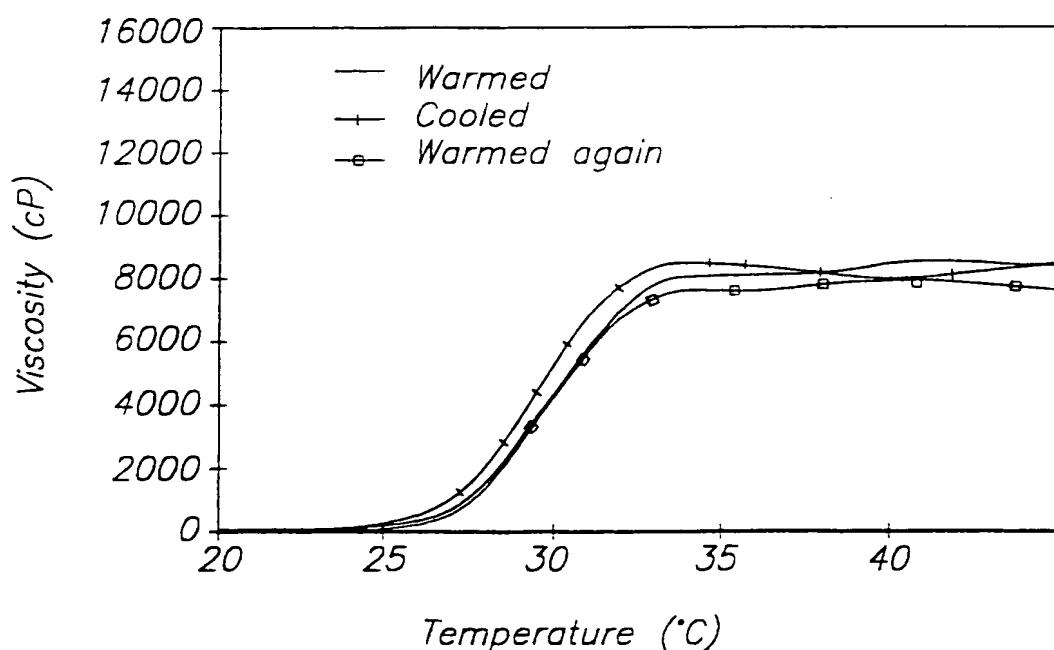


FIG. 2

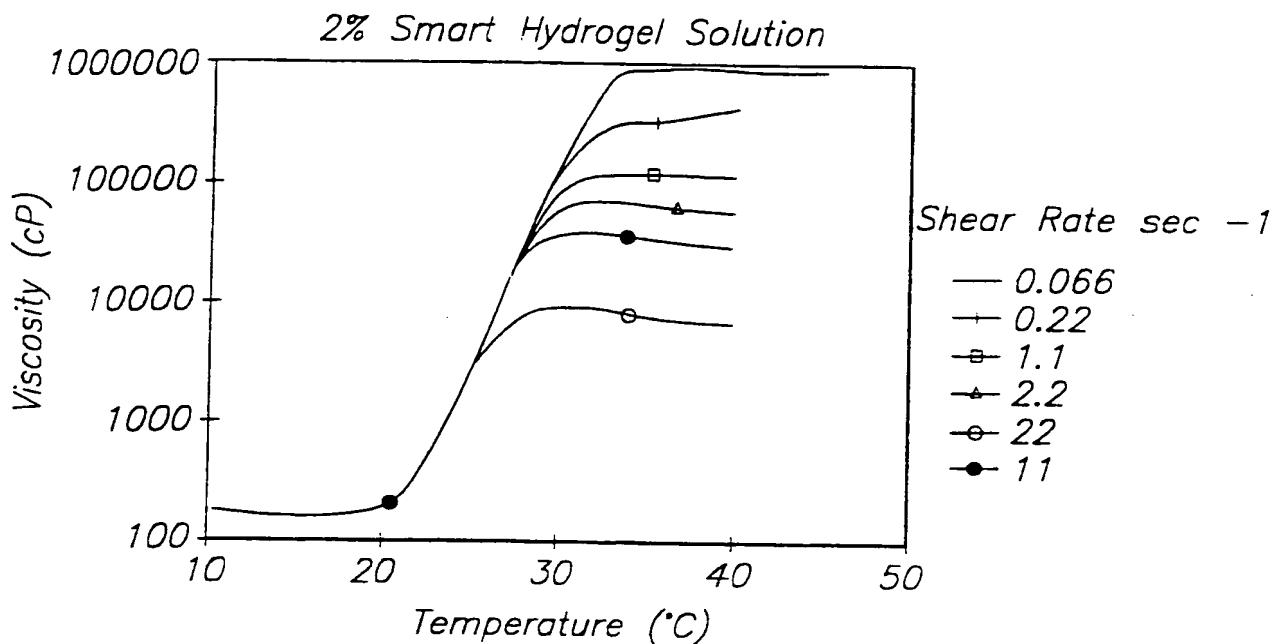


FIG. 3

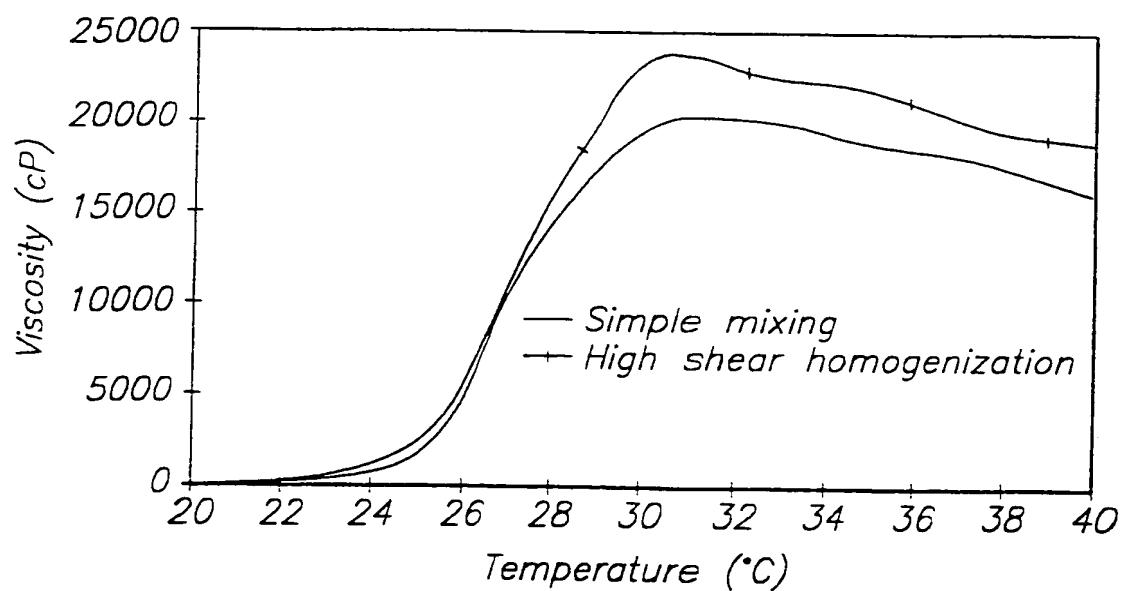
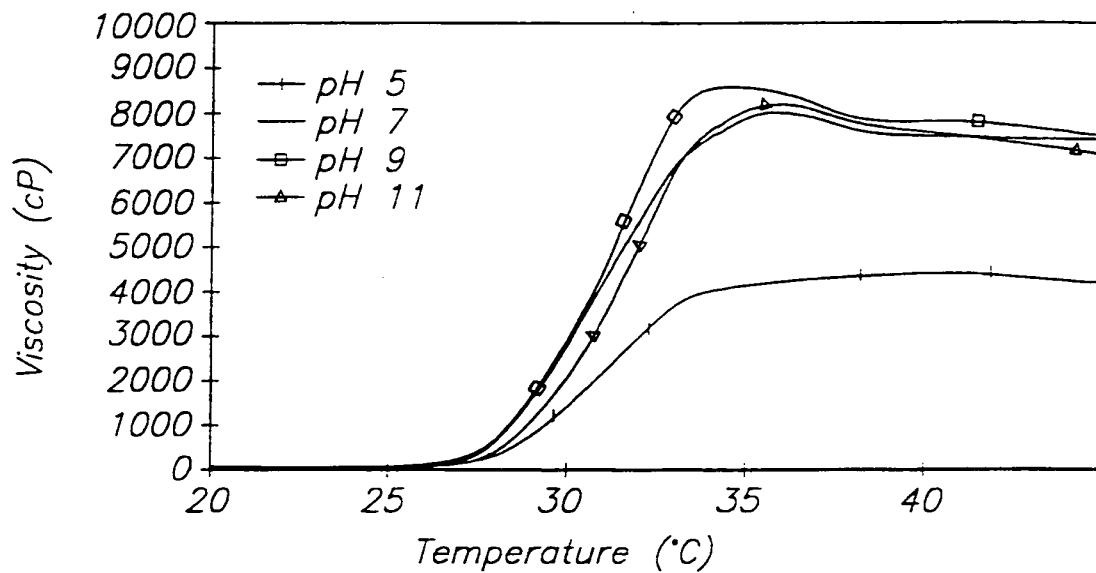
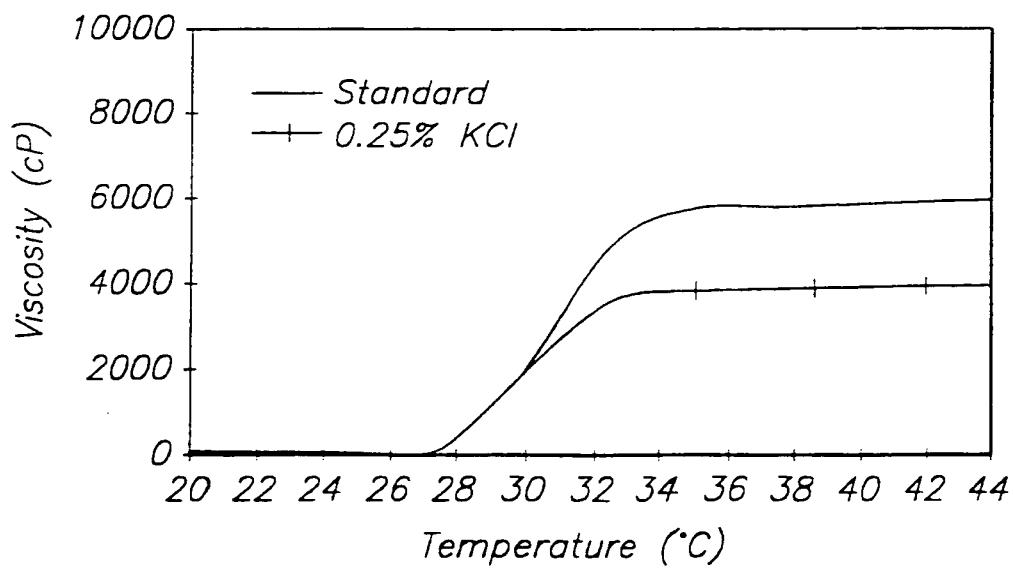


FIG. 4

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**FIG. 5****FIG. 6**

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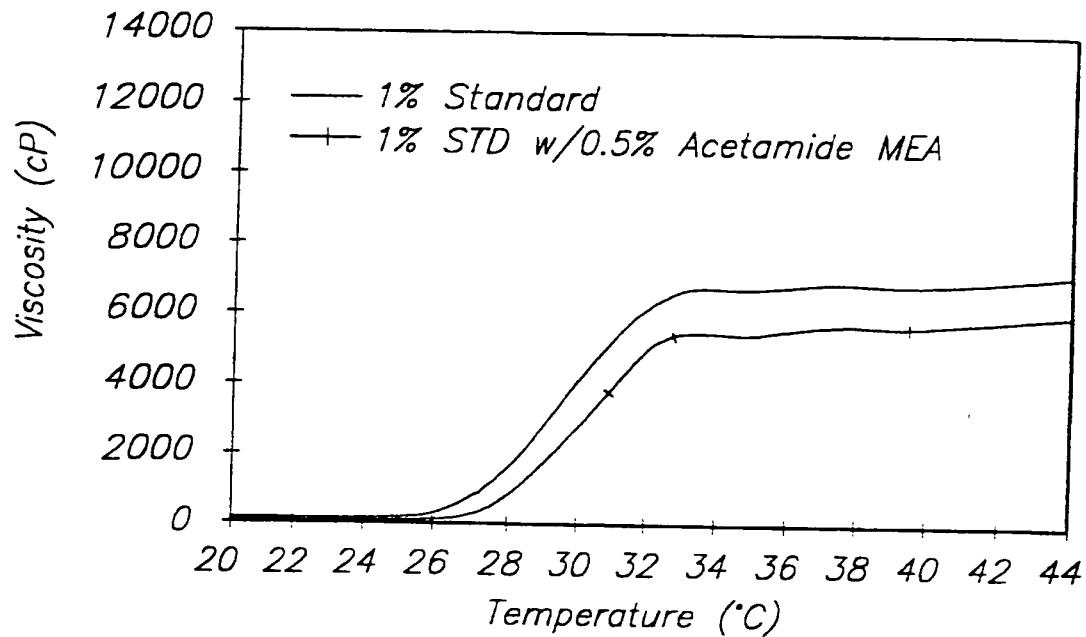


FIG. 7

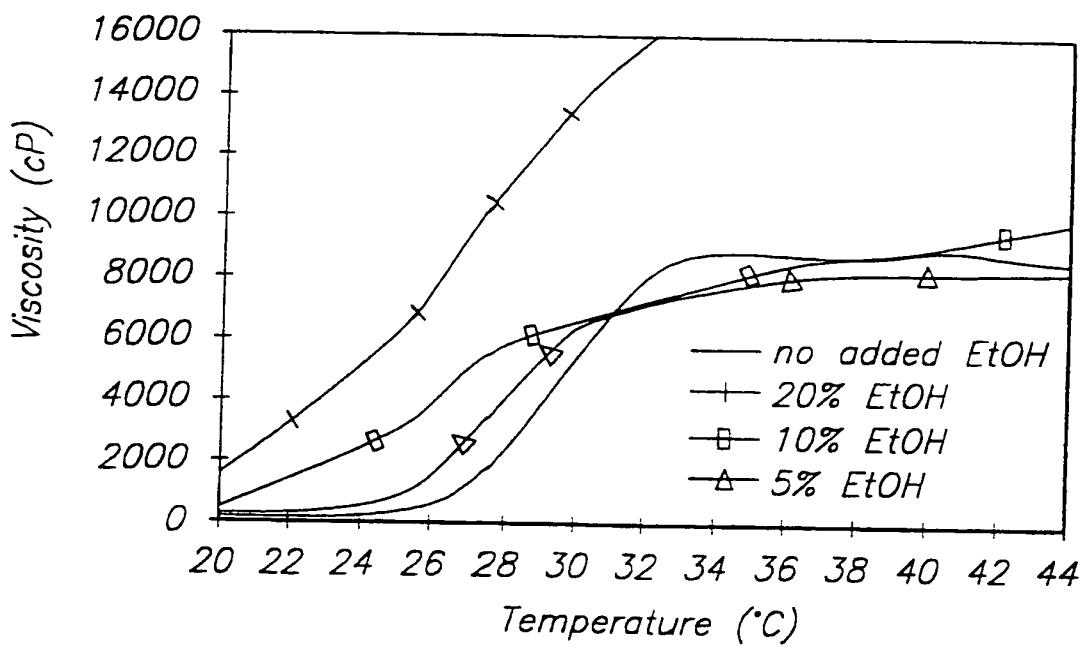


FIG. 8

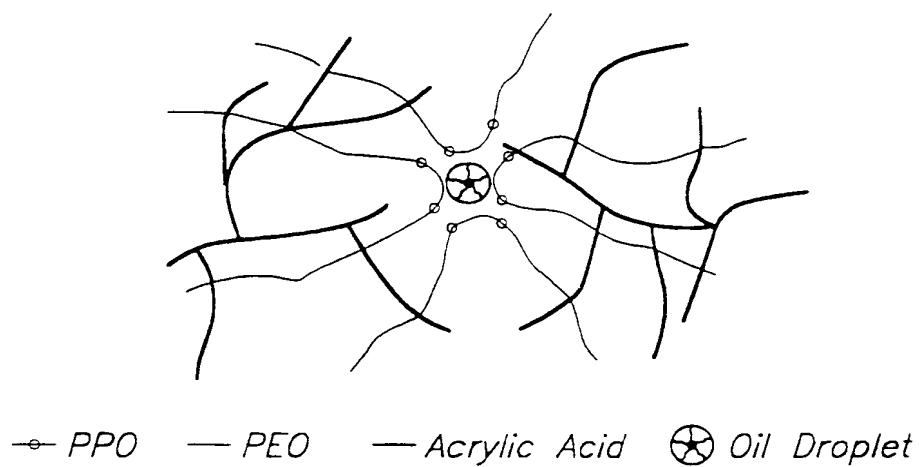


FIG. 9

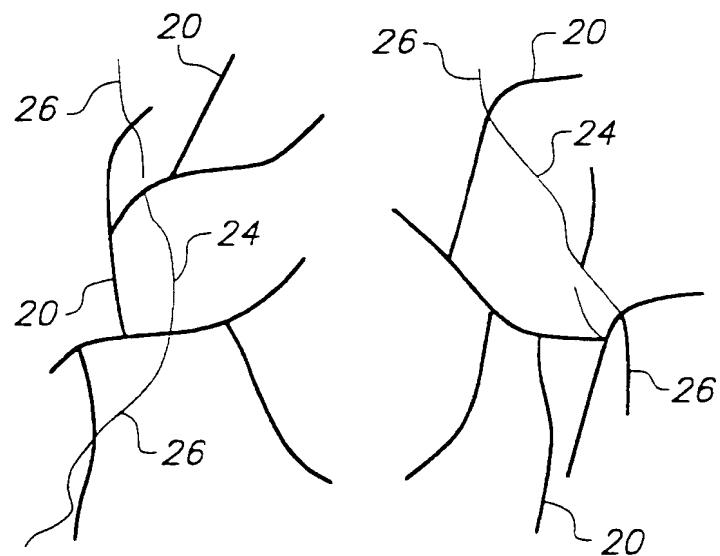


FIG. 10A

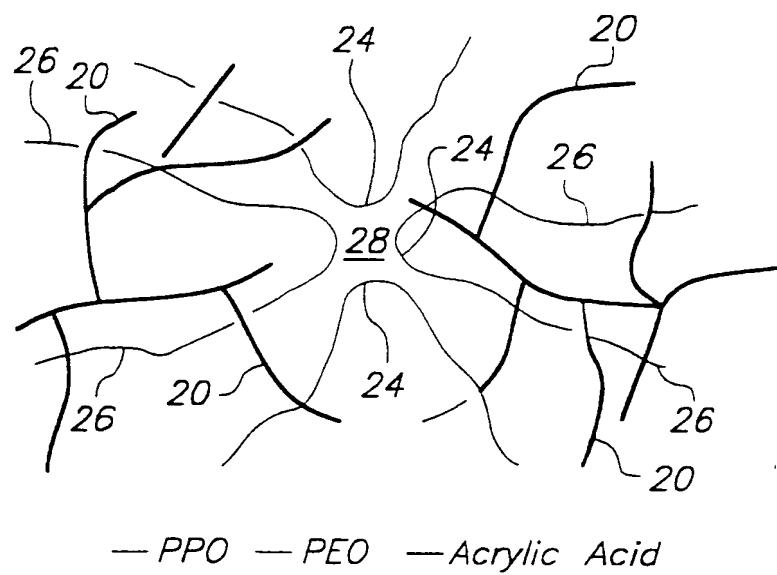


FIG. 10B

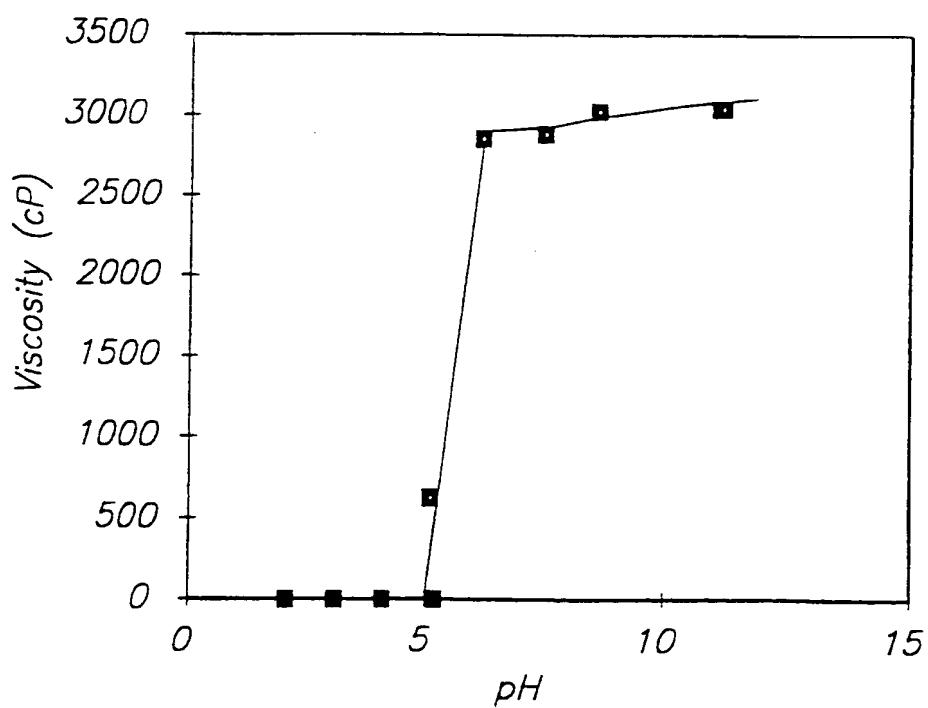
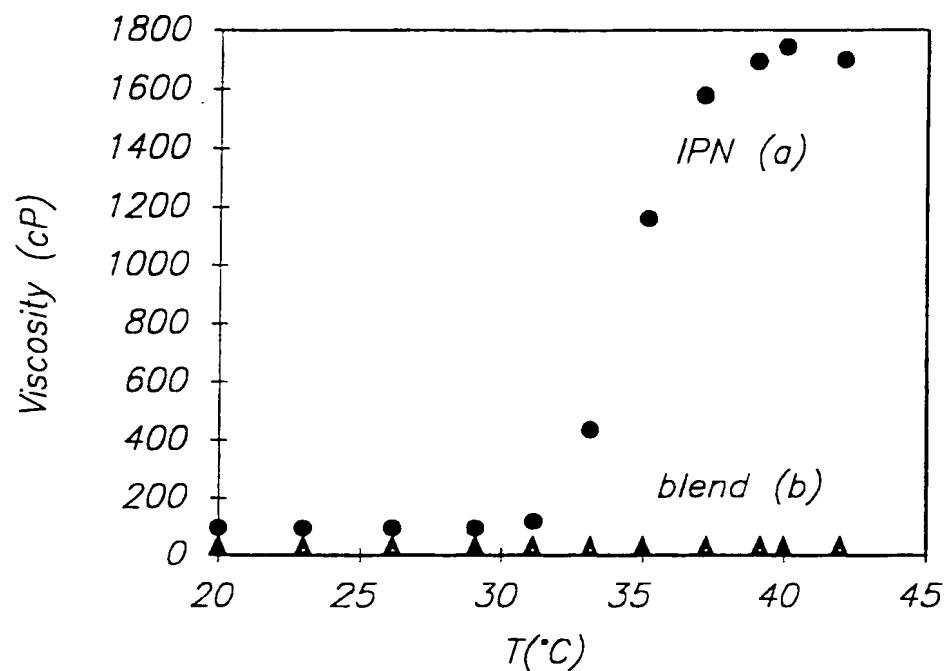
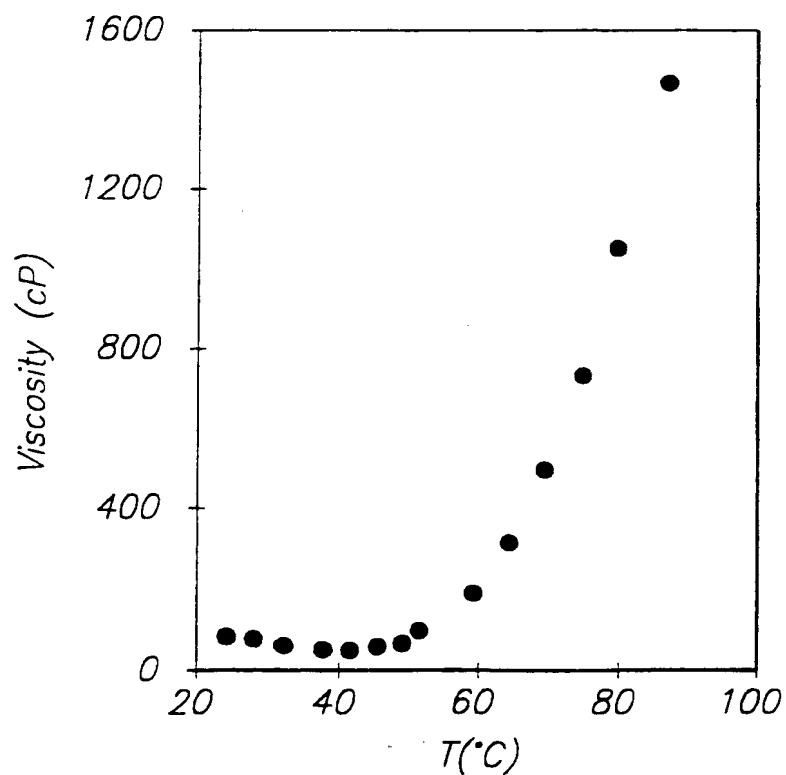
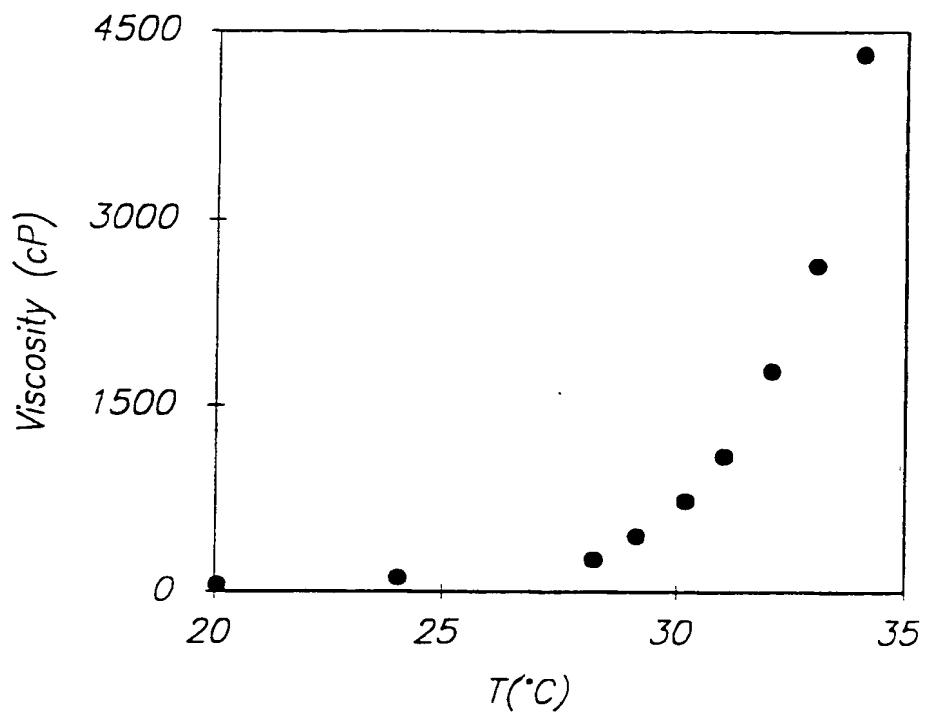
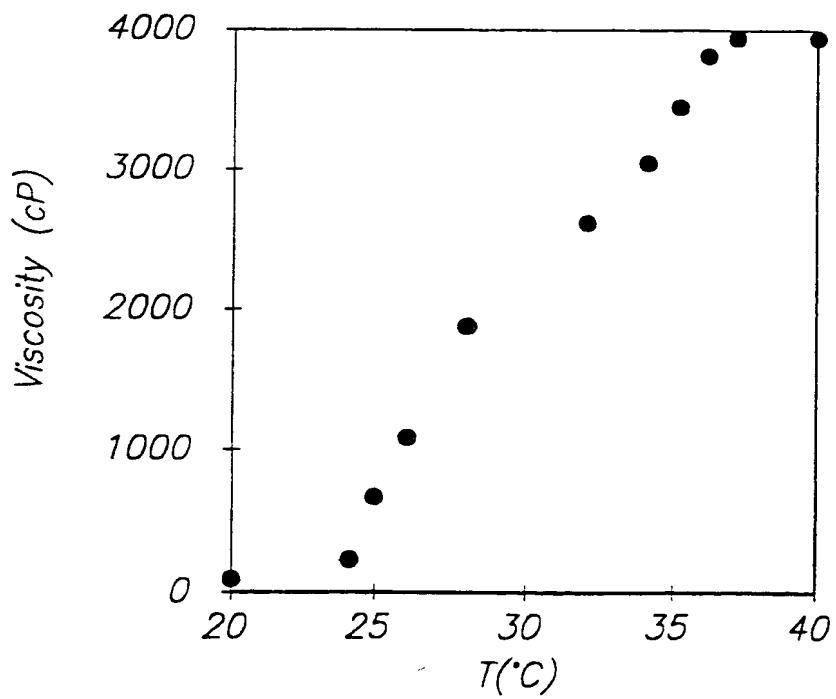


FIG. 11

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**FIG. 12****FIG. 13**

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**FIG. 14****FIG. 15**

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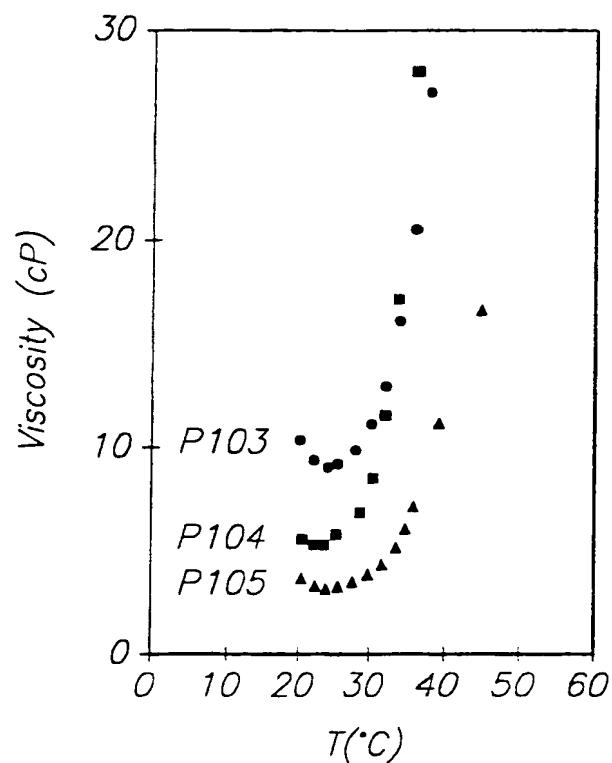


FIG. 16

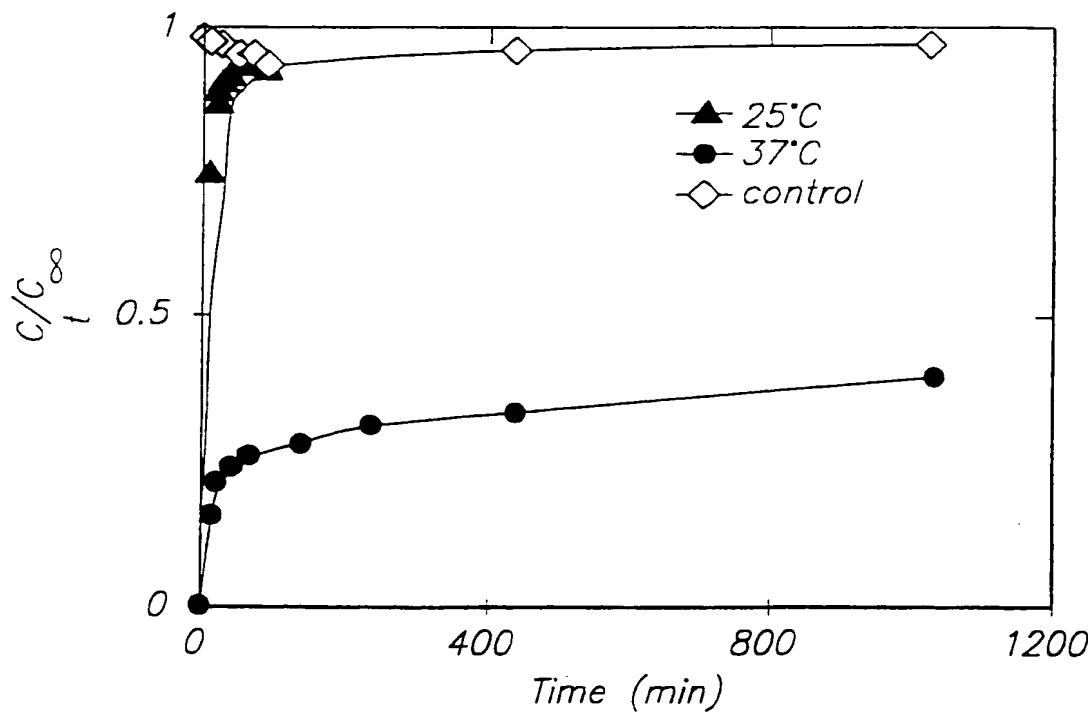


FIG. 17

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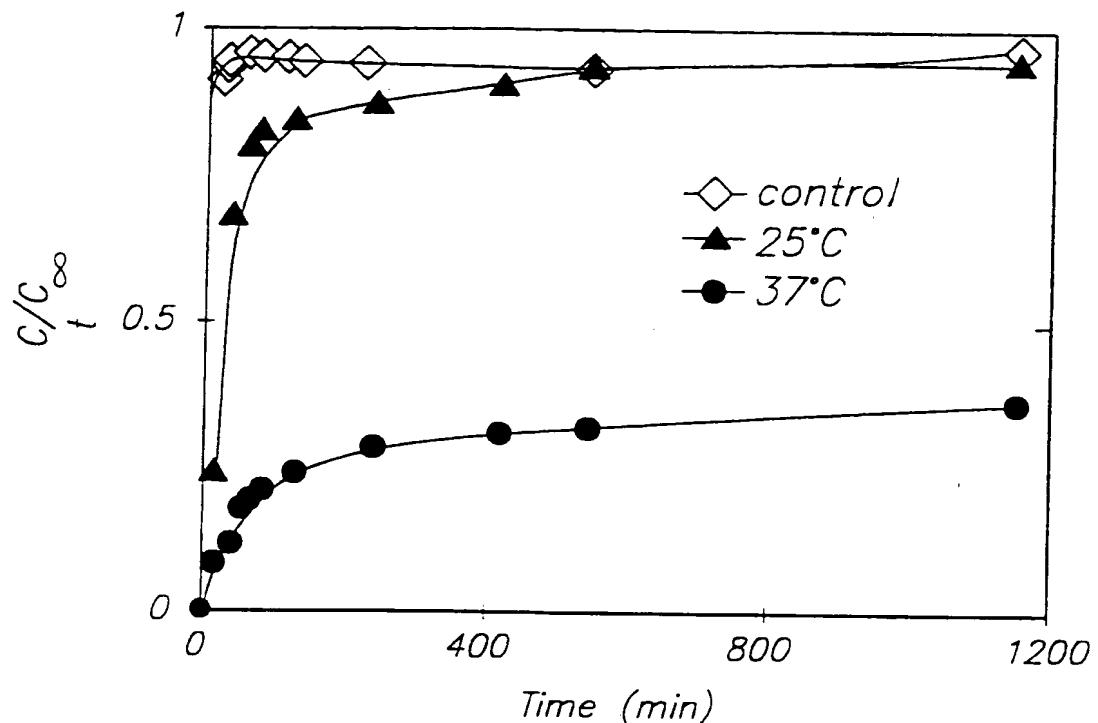


FIG. 18

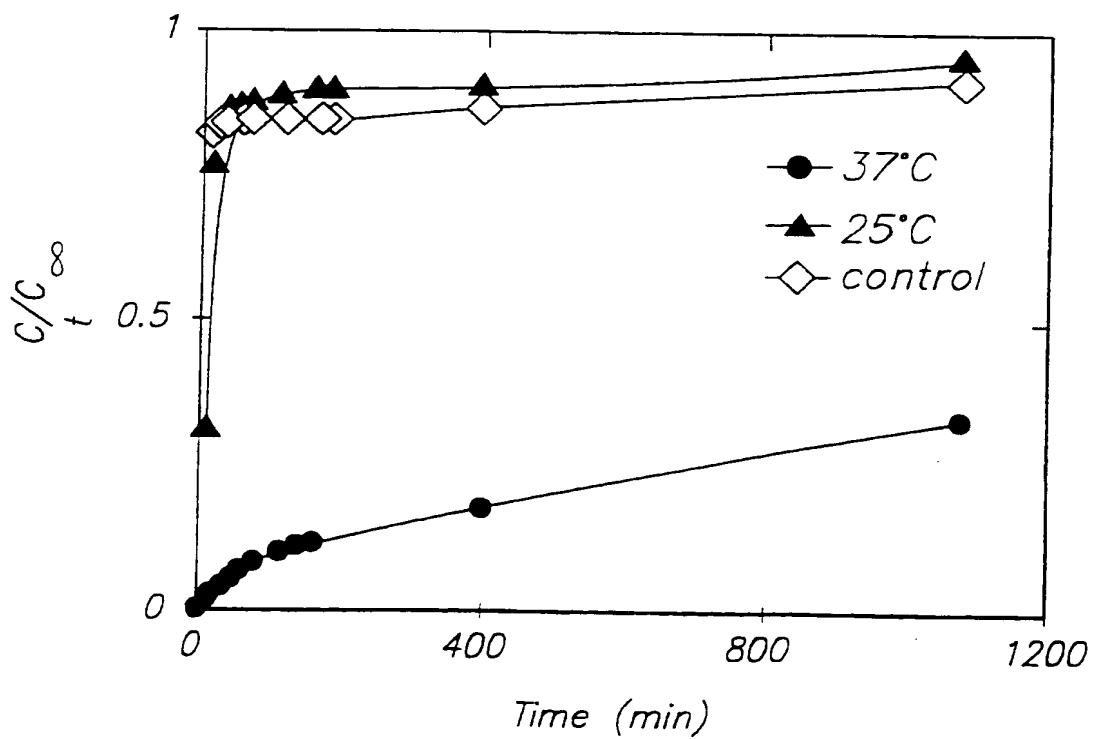


FIG. 19

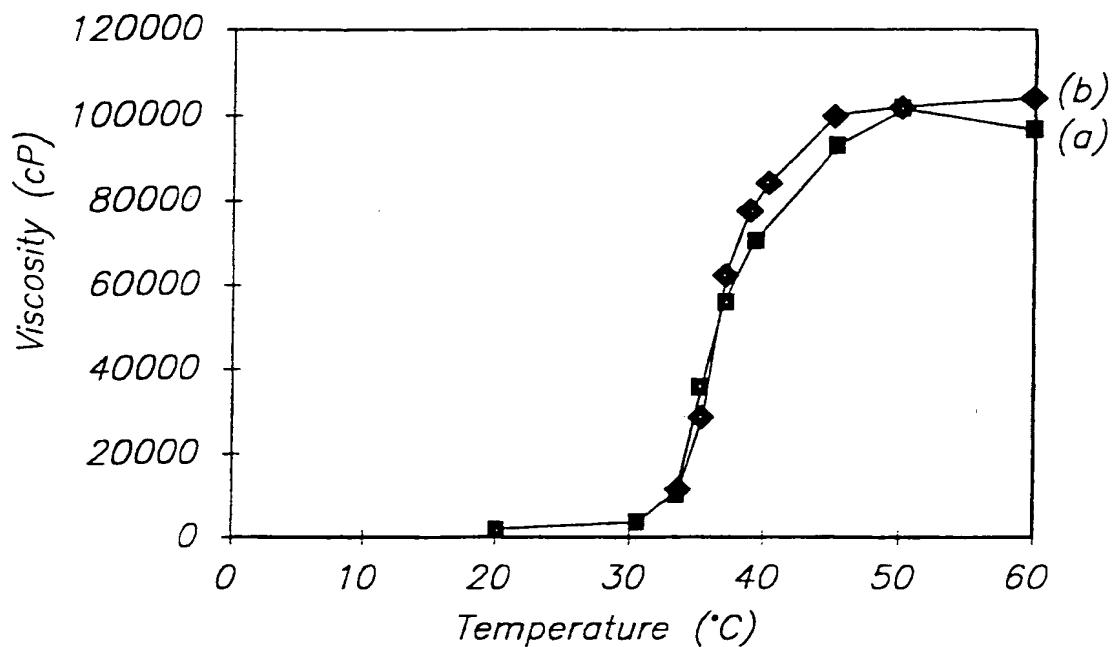


FIG. 20

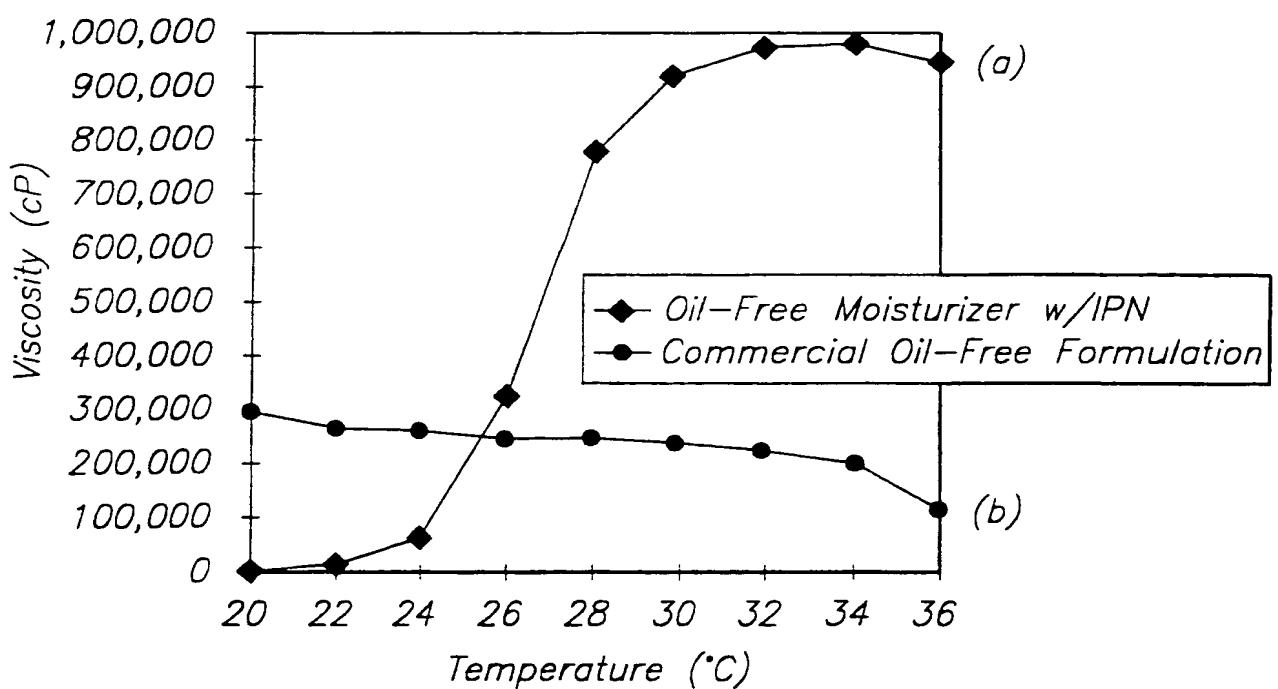


FIG. 21

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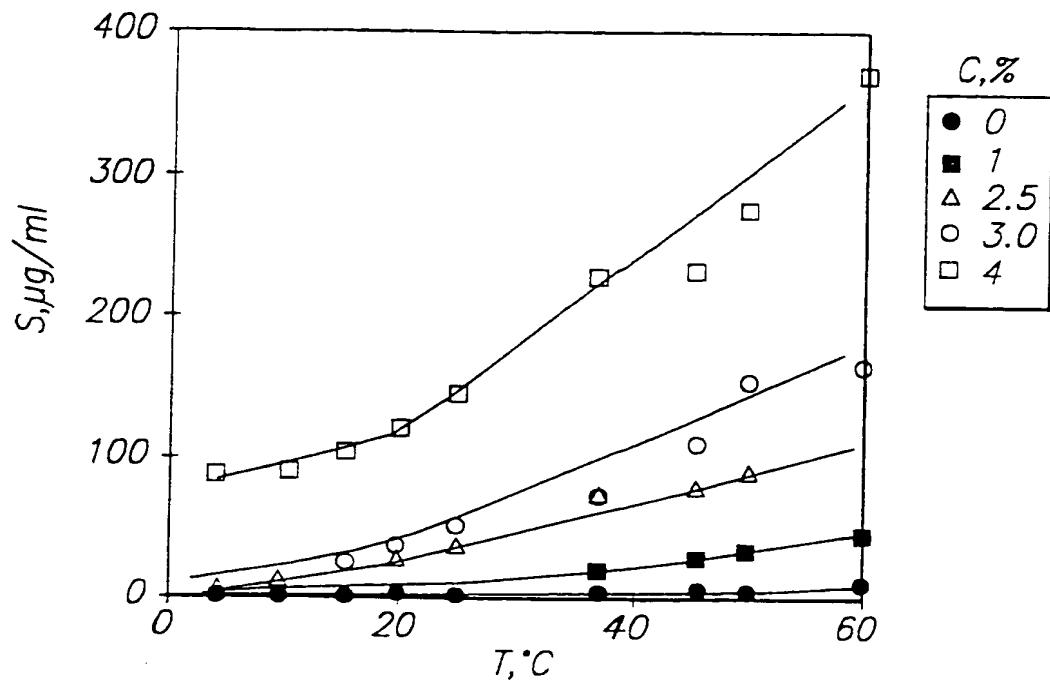


FIG. 22A

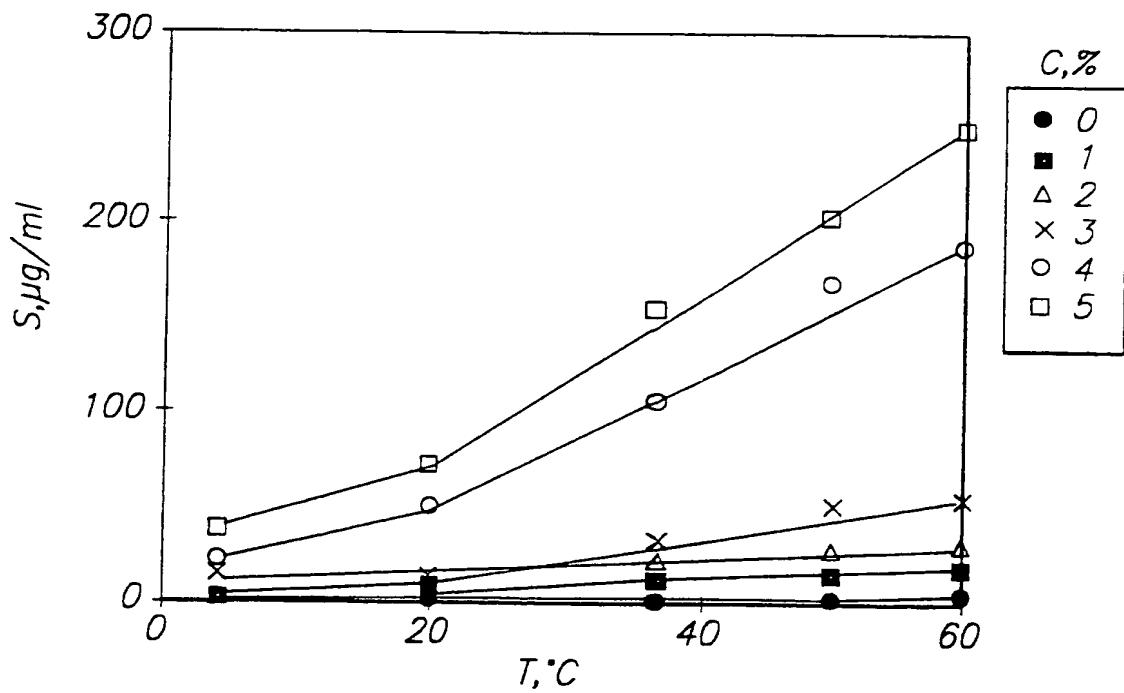
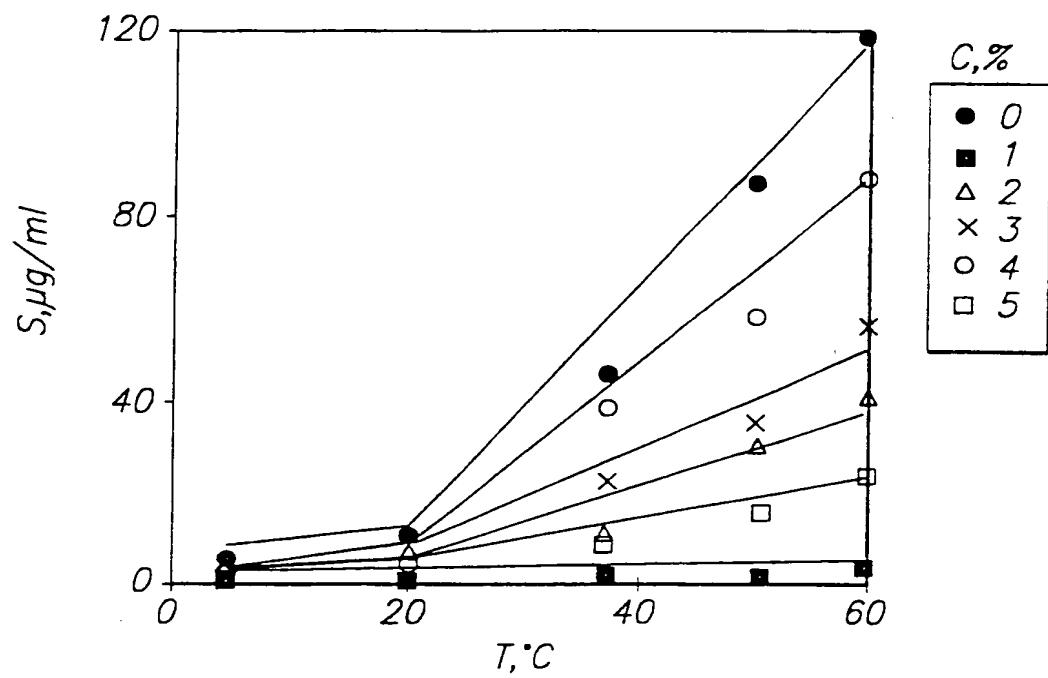
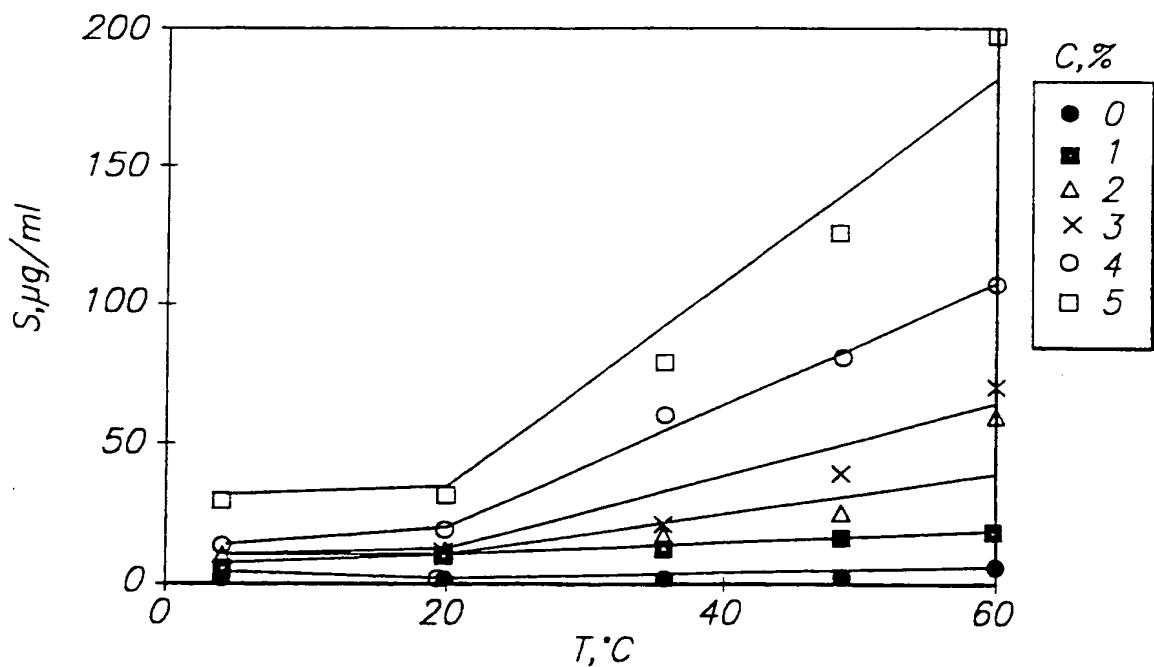


FIG. 22B

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**FIG. 22C****FIG. 22D**

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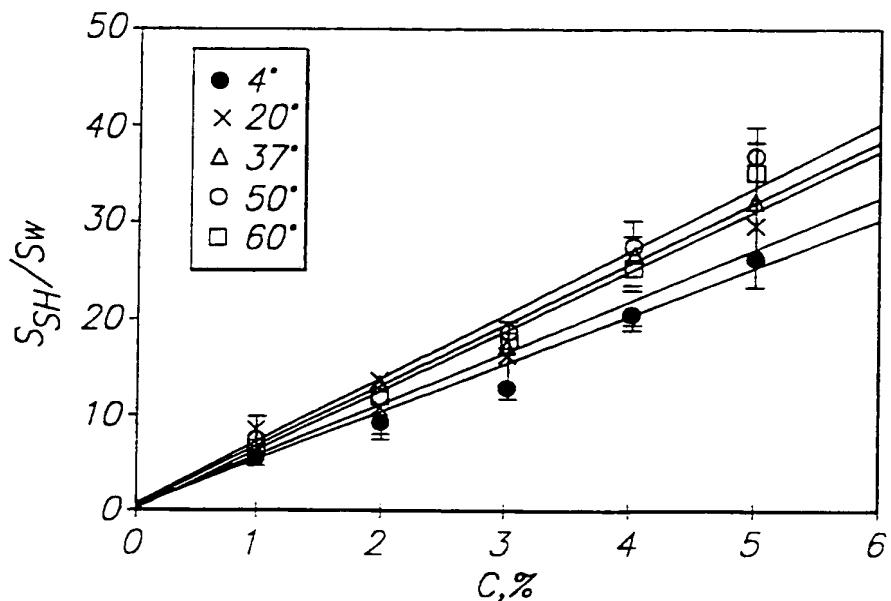


FIG. 23

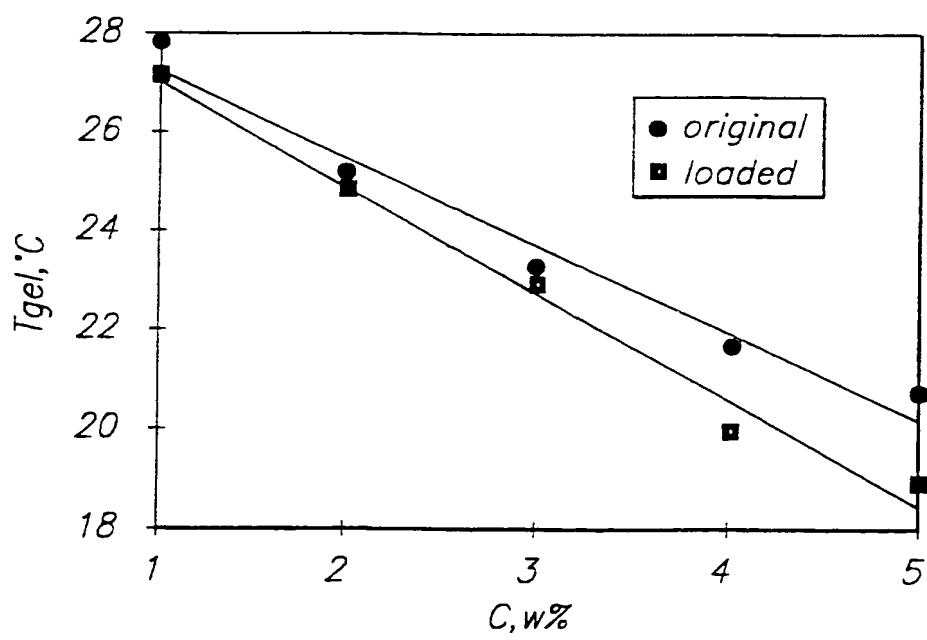


FIG. 24

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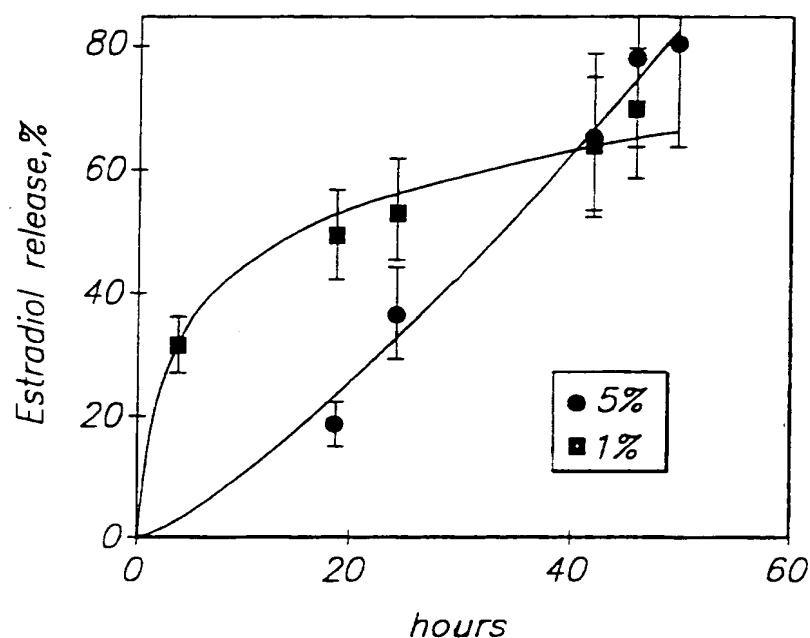


FIG. 25A

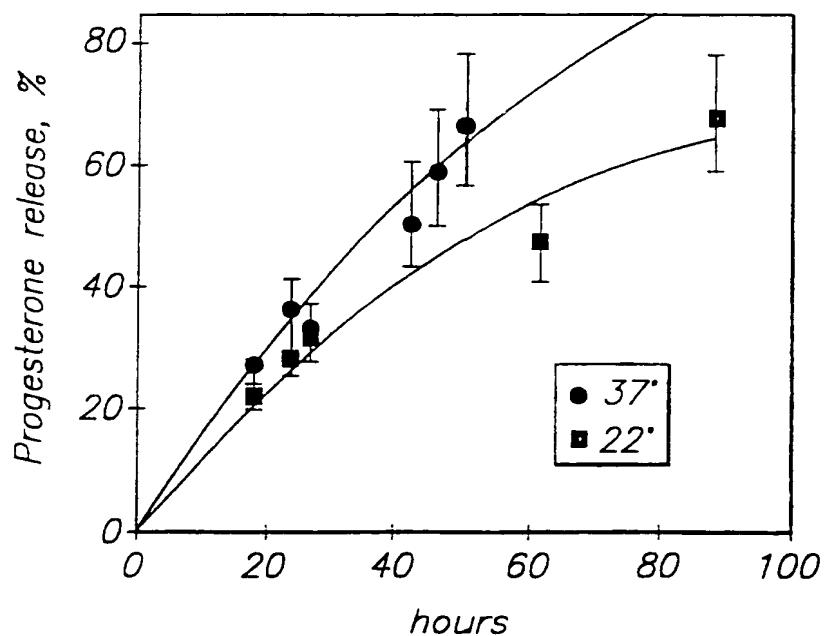


FIG. 25B

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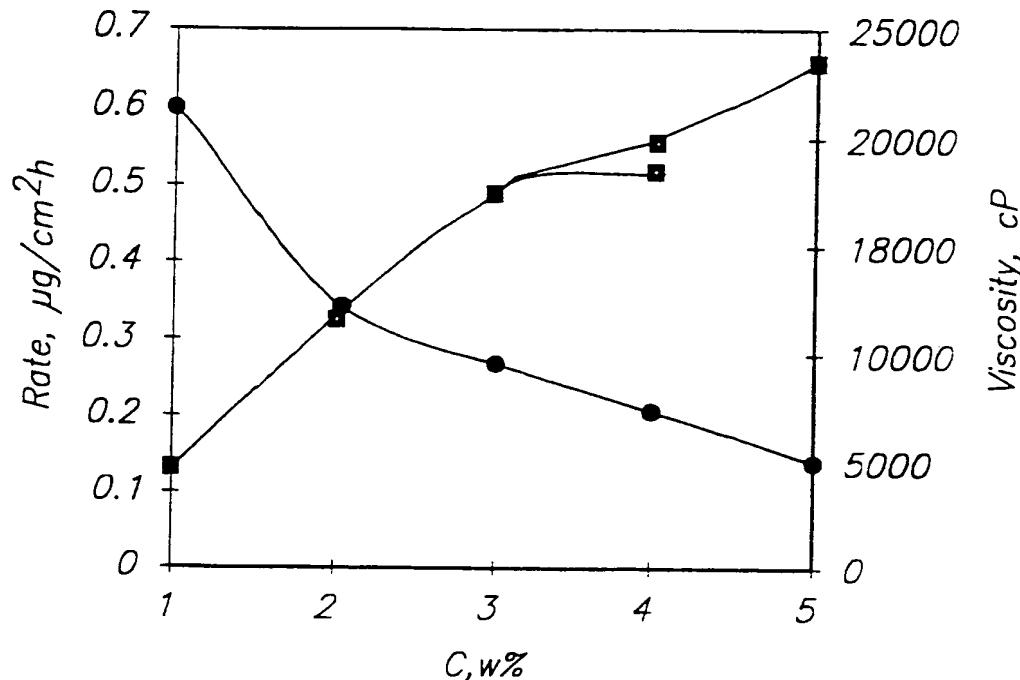


FIG. 26

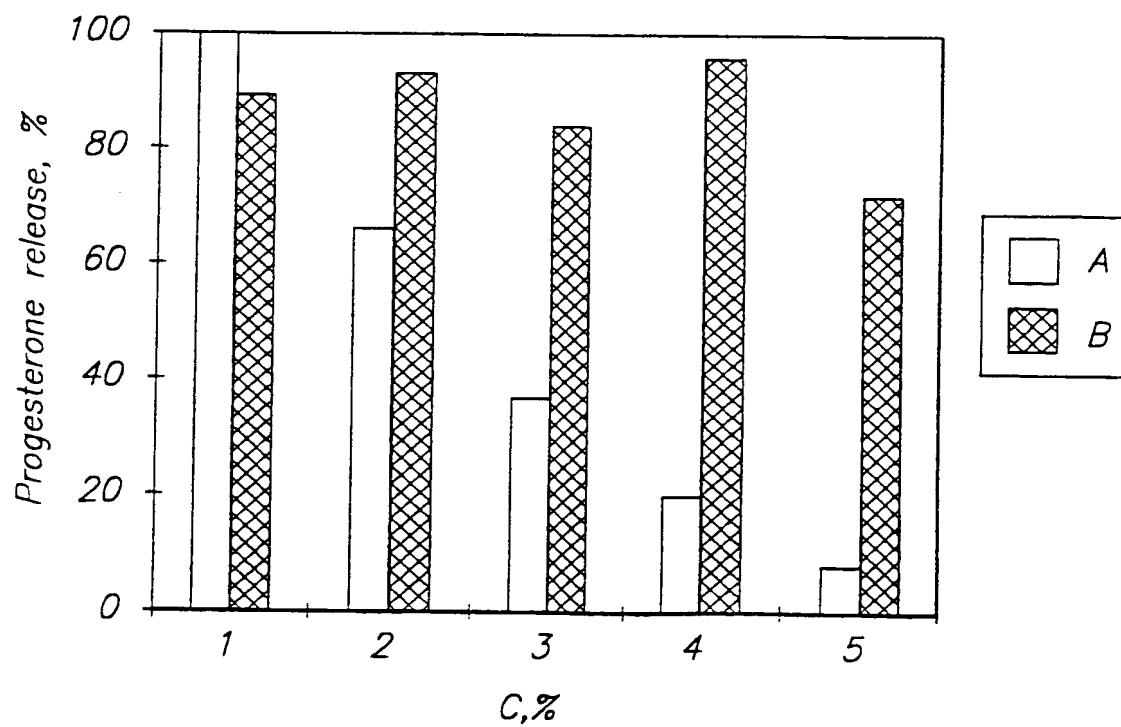


FIG. 27

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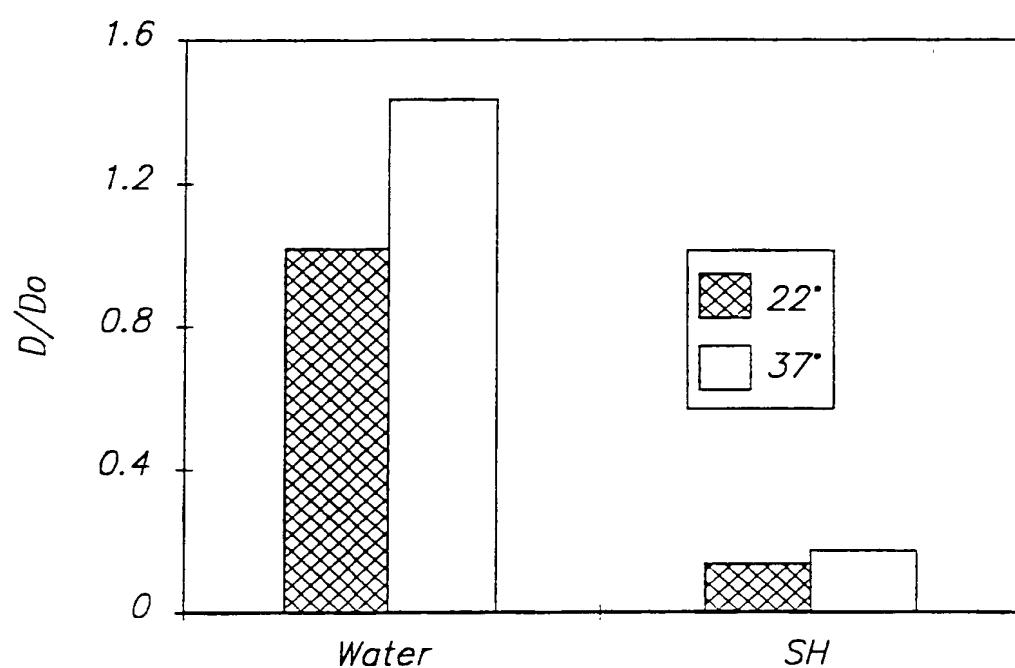


FIG. 28

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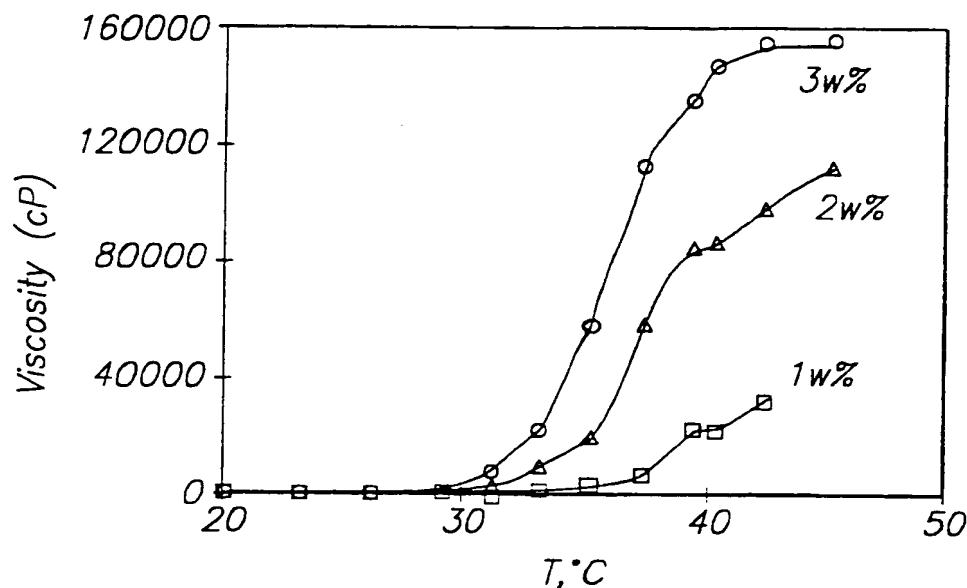


FIG. 1

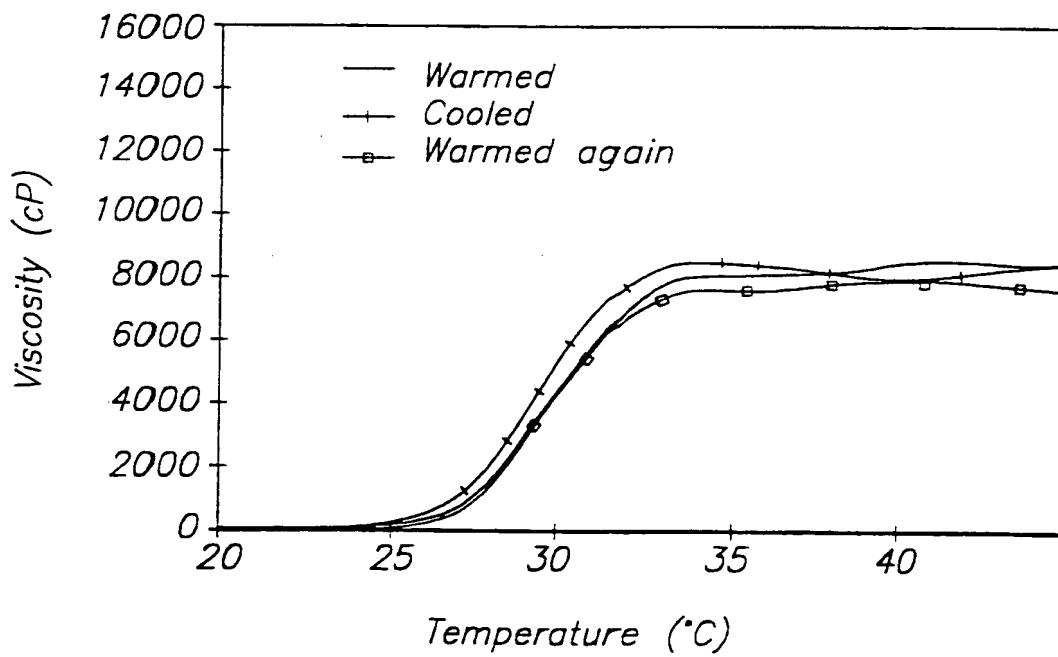
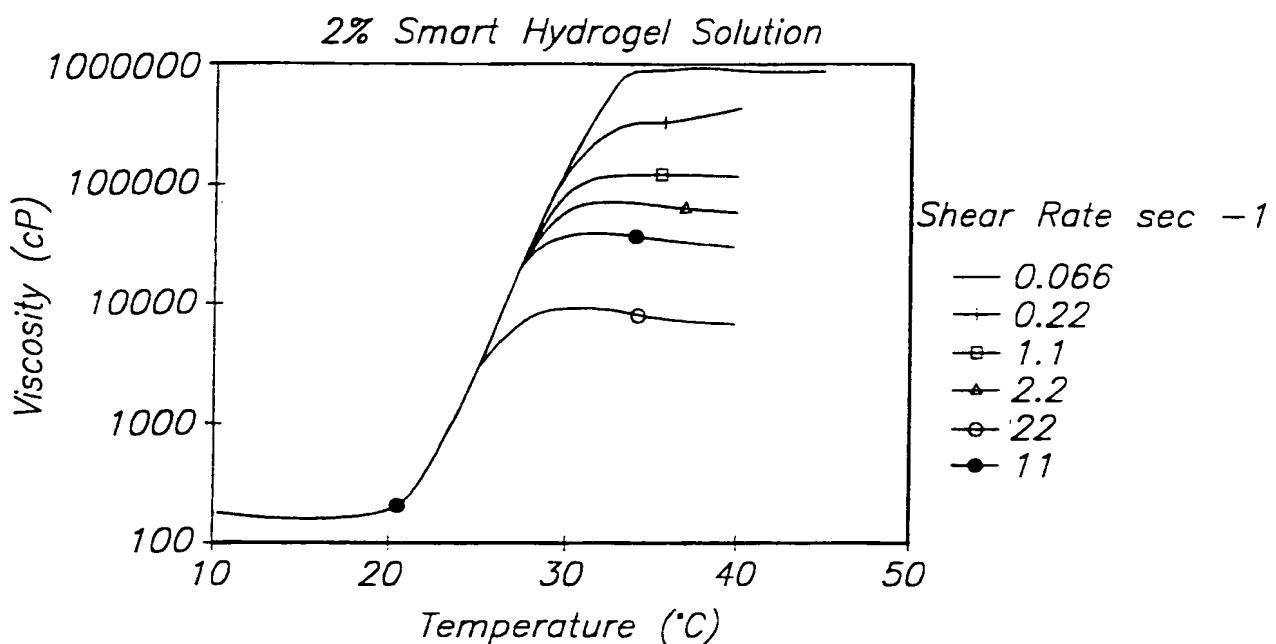
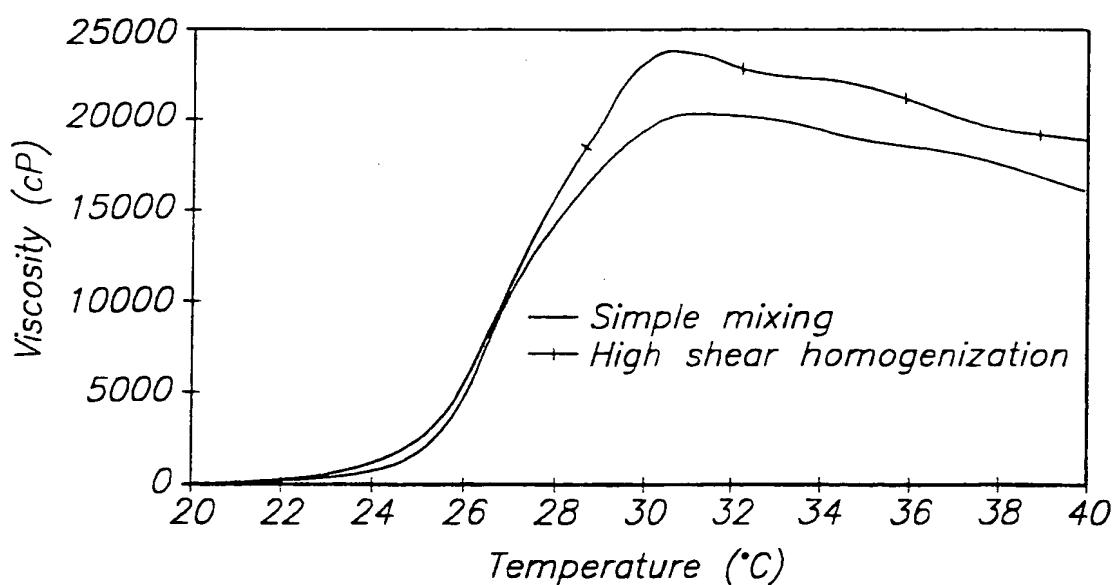


FIG. 2

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**FIG. 3****FIG. 4**

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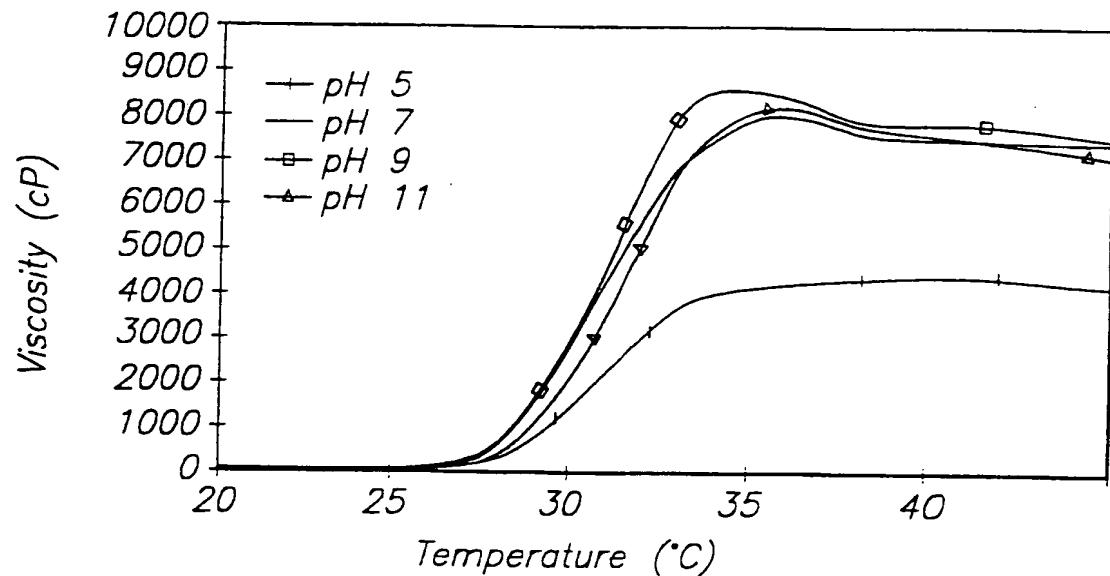


FIG. 5

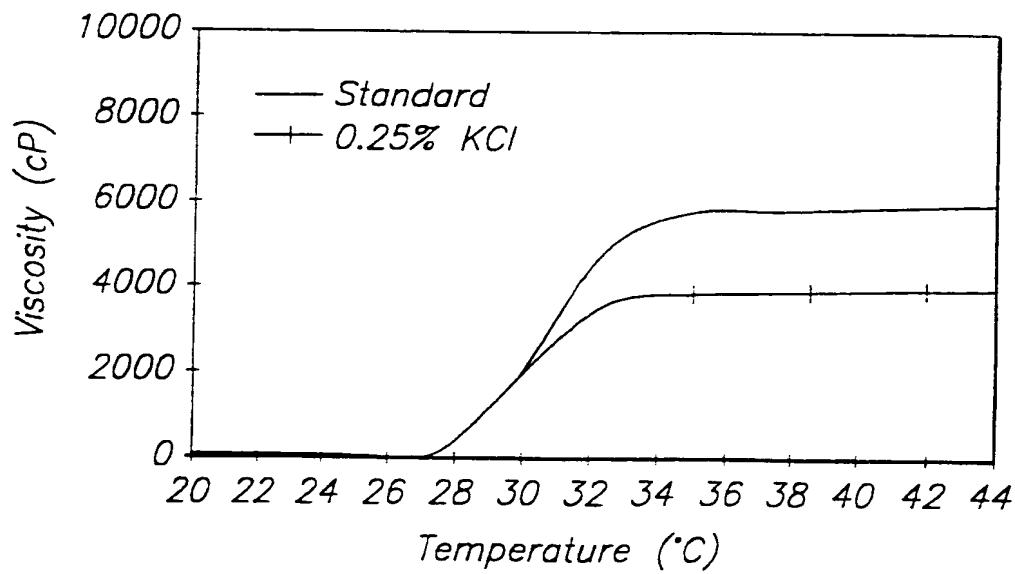


FIG. 6

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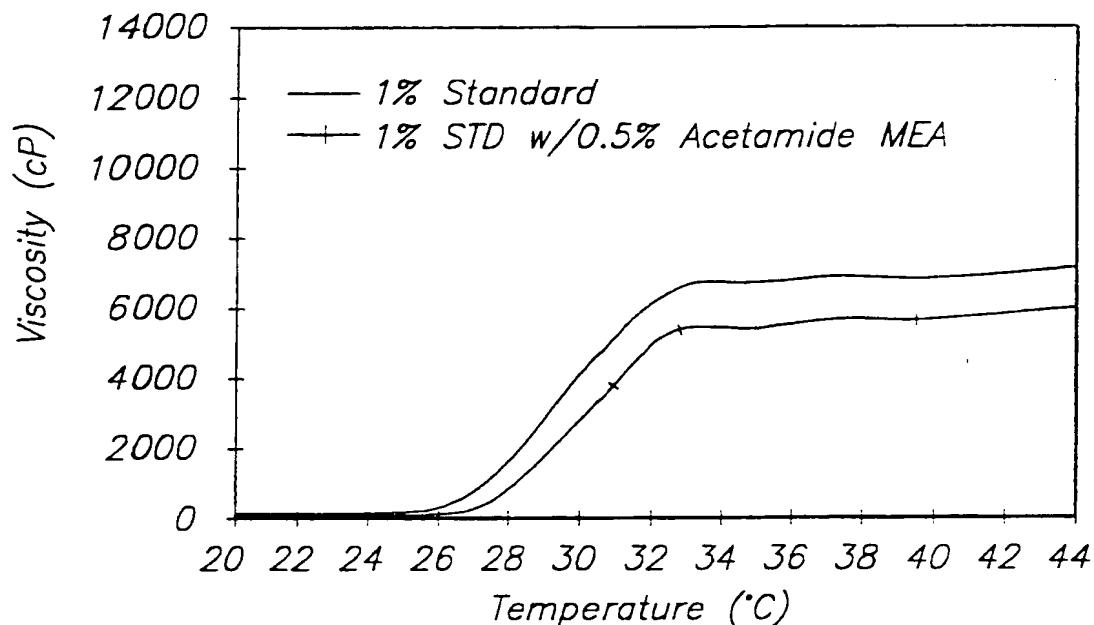


FIG. 7

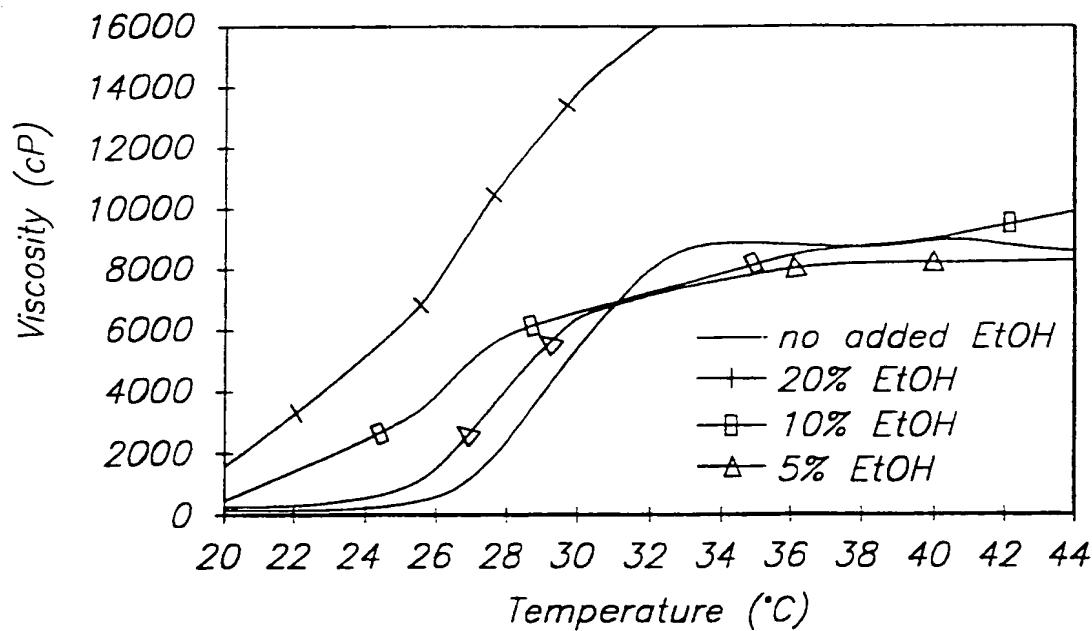
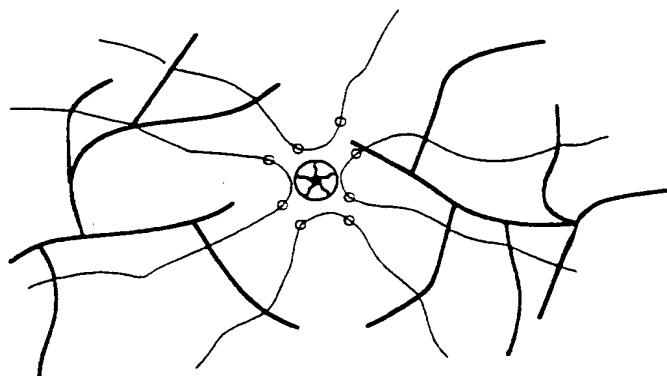


FIG. 8

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— PPO — PEO — Acrylic Acid ⚡ Oil Droplet

FIG. 9

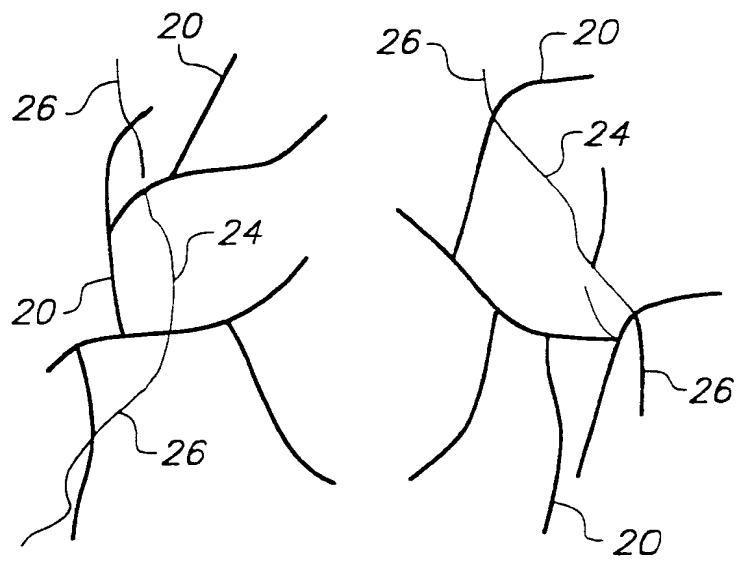


FIG. 10A

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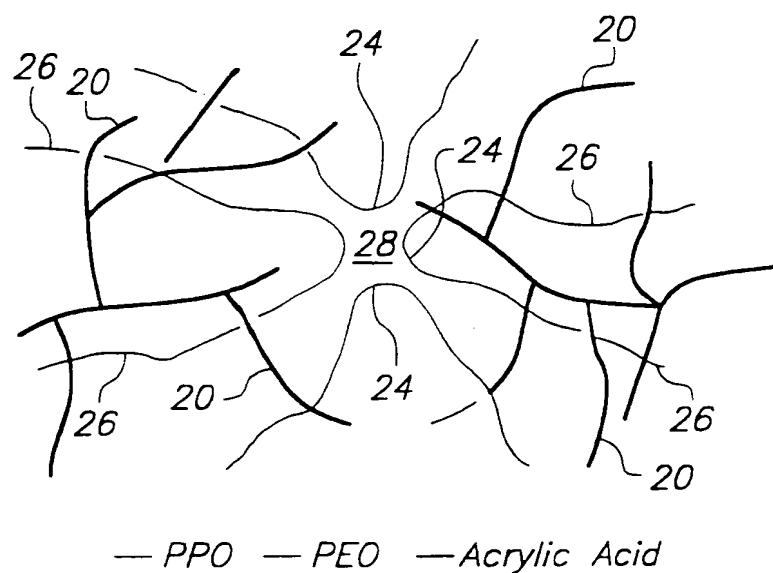


FIG. 10B

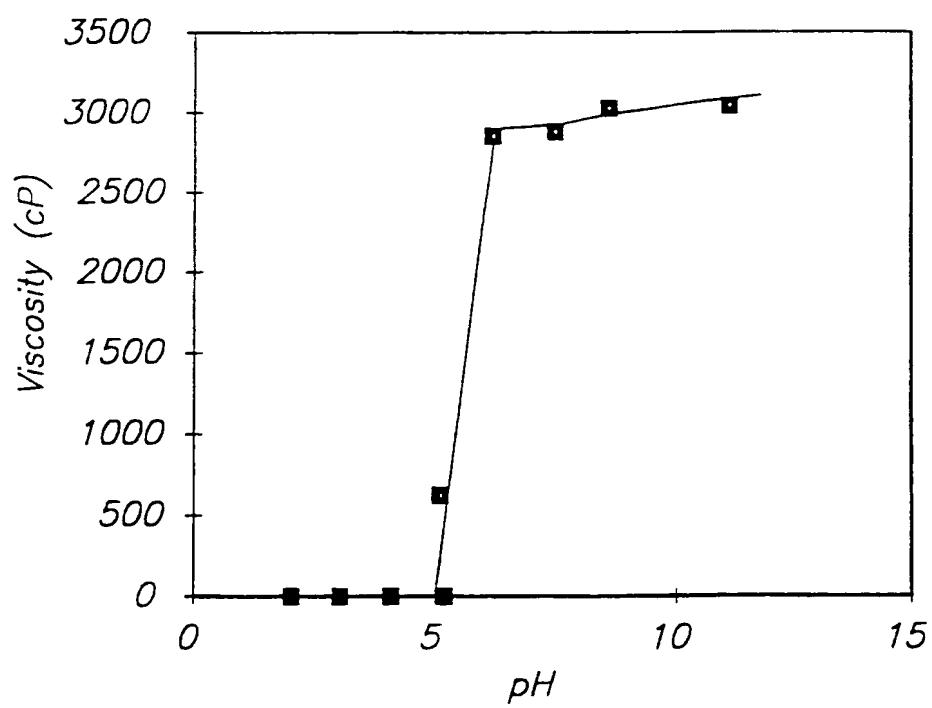


FIG. 11

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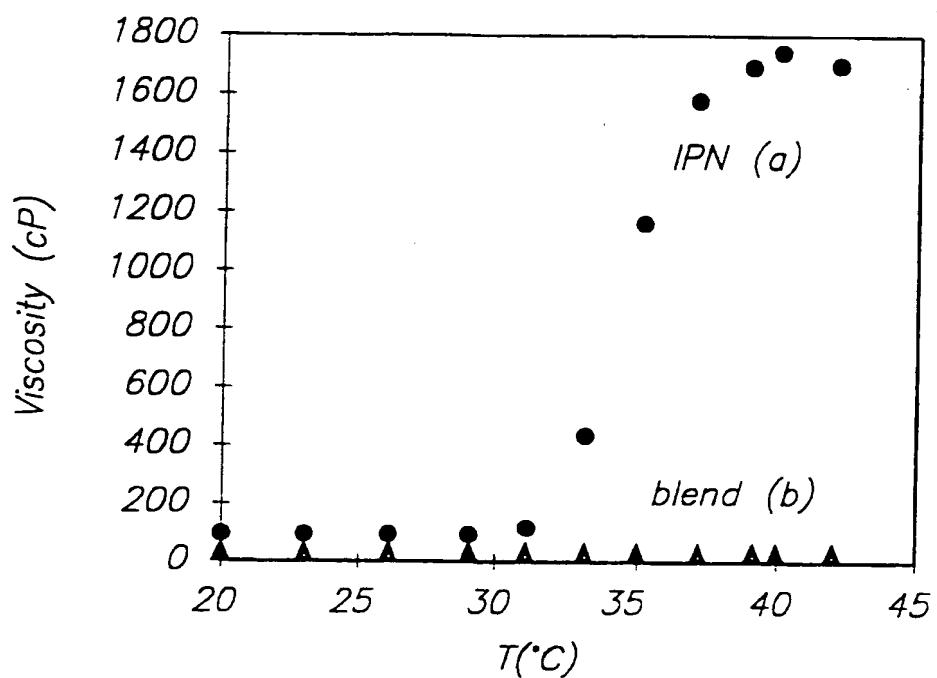


FIG. 12

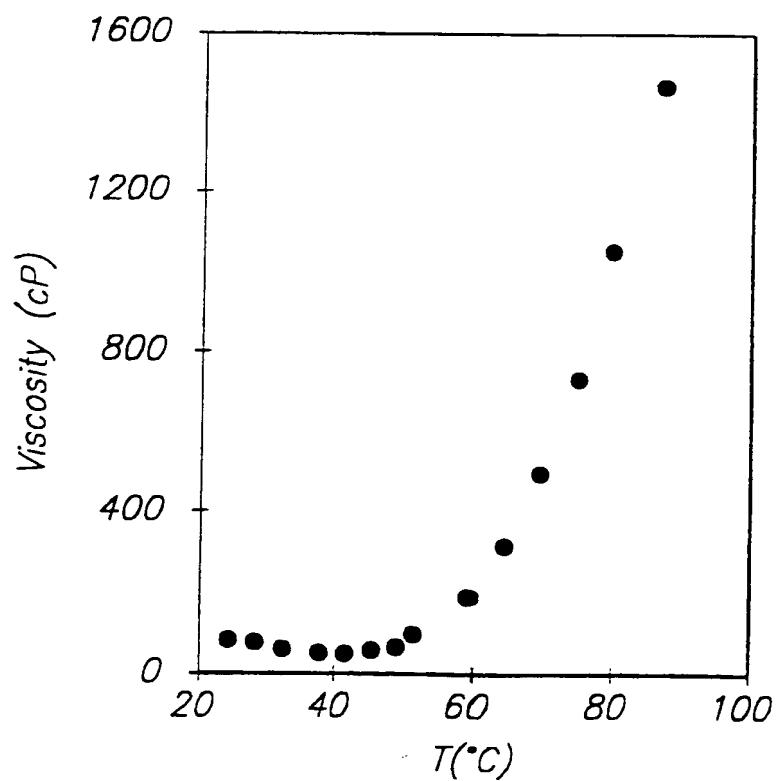
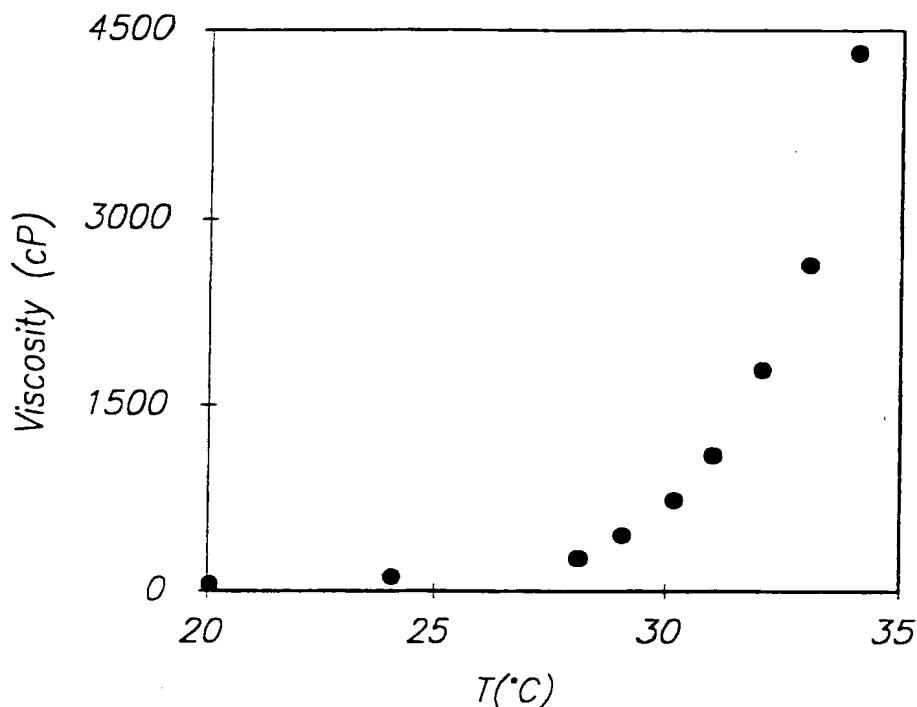
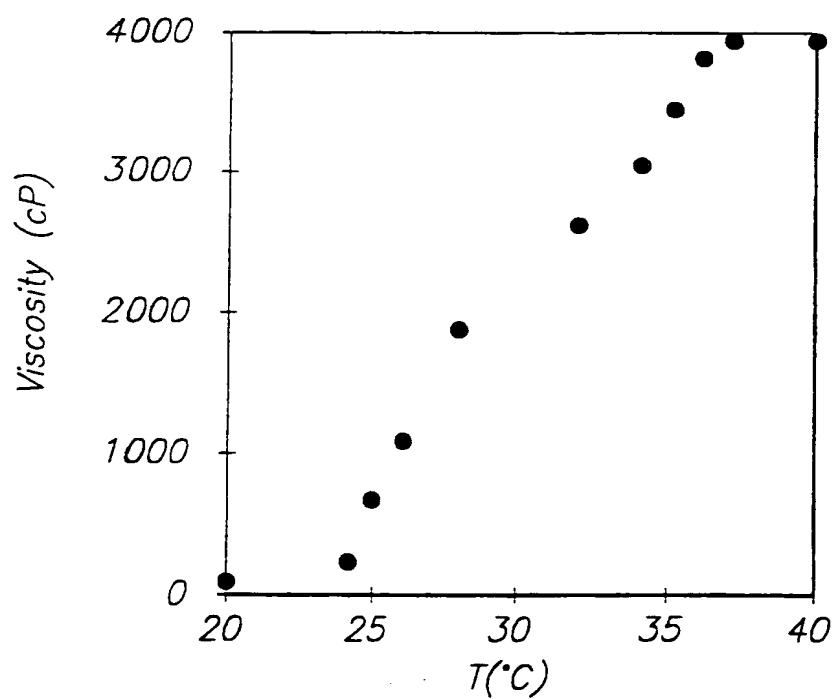
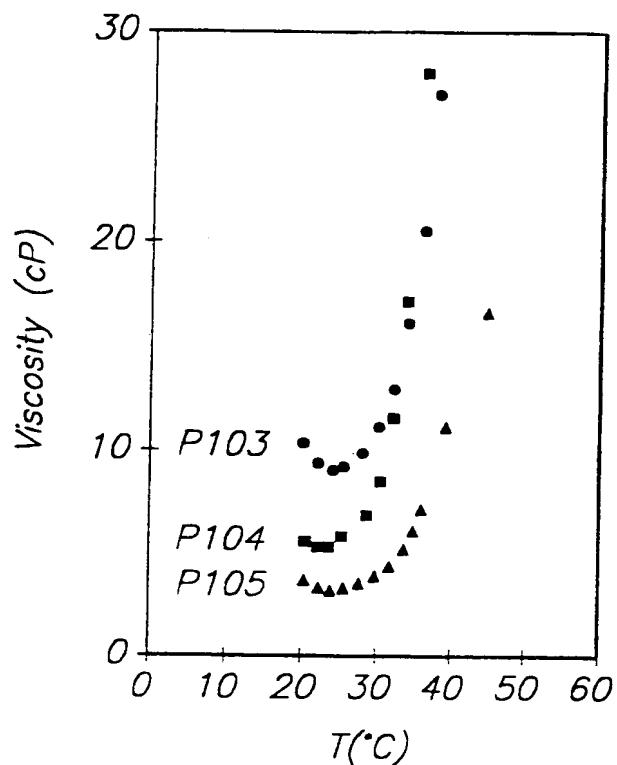
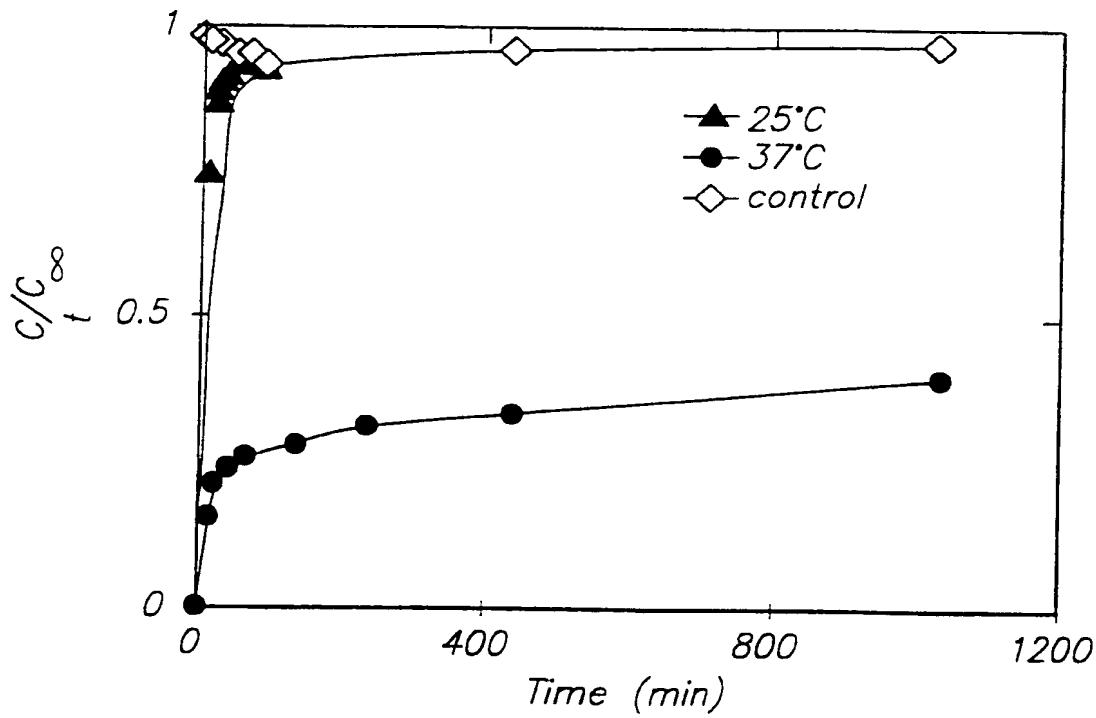


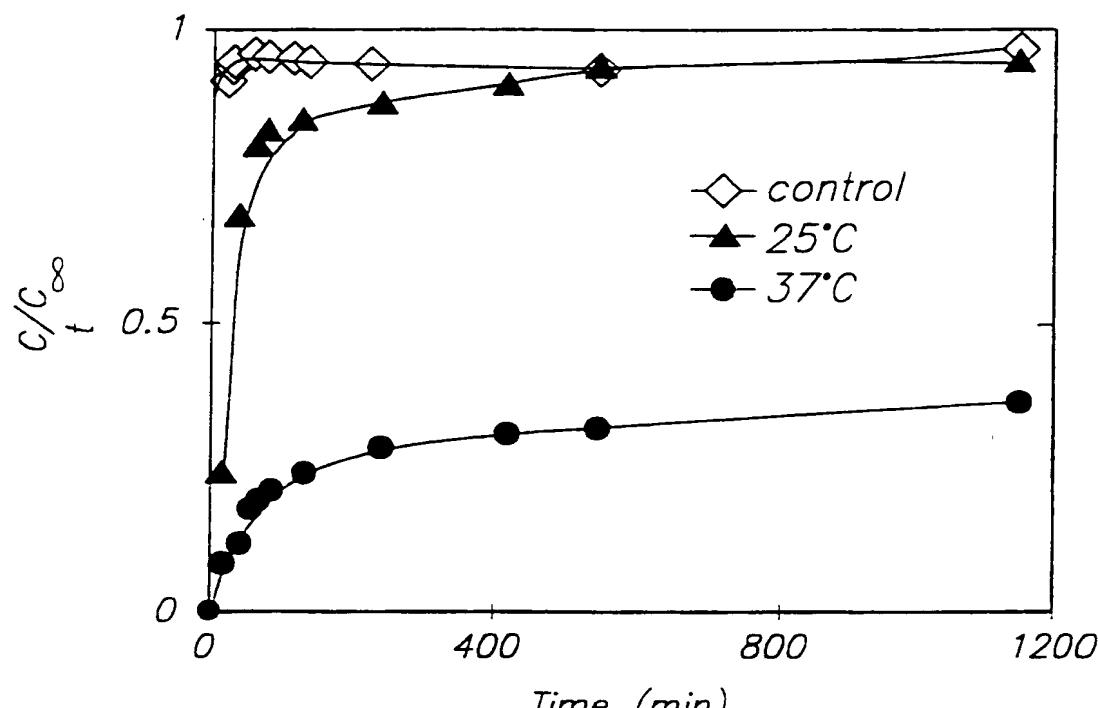
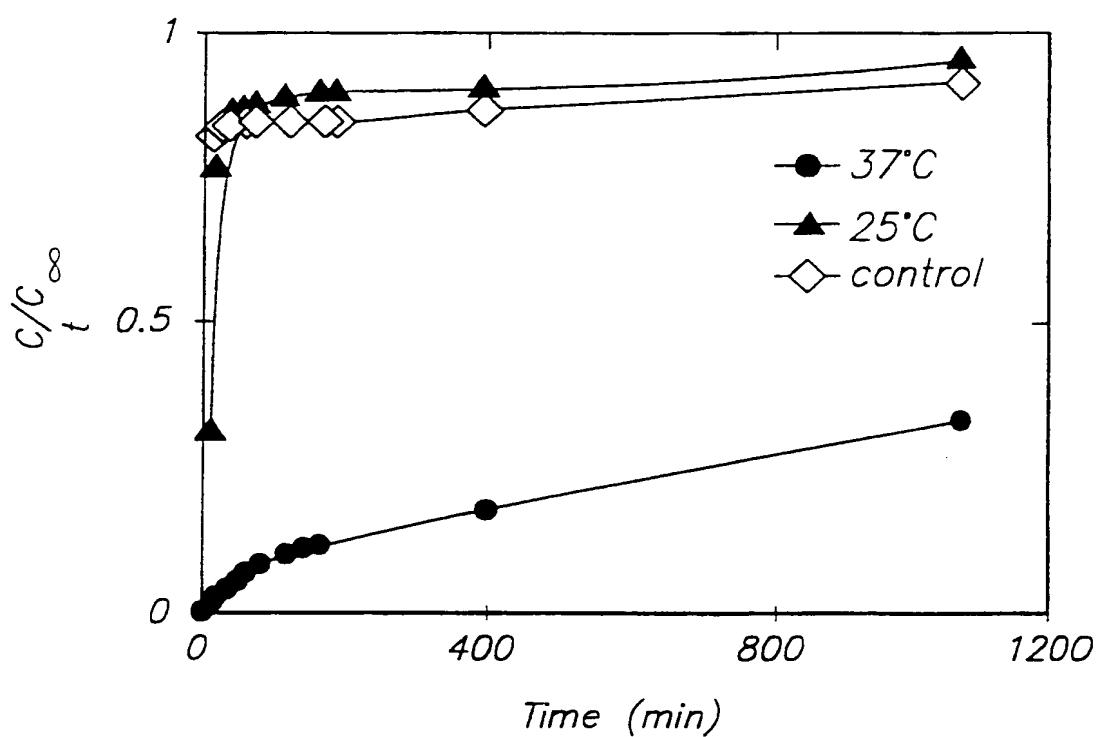
FIG. 13

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**FIG. 14****FIG. 15**

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**FIG. 16****FIG. 17**

**FIG. 18****FIG. 19**

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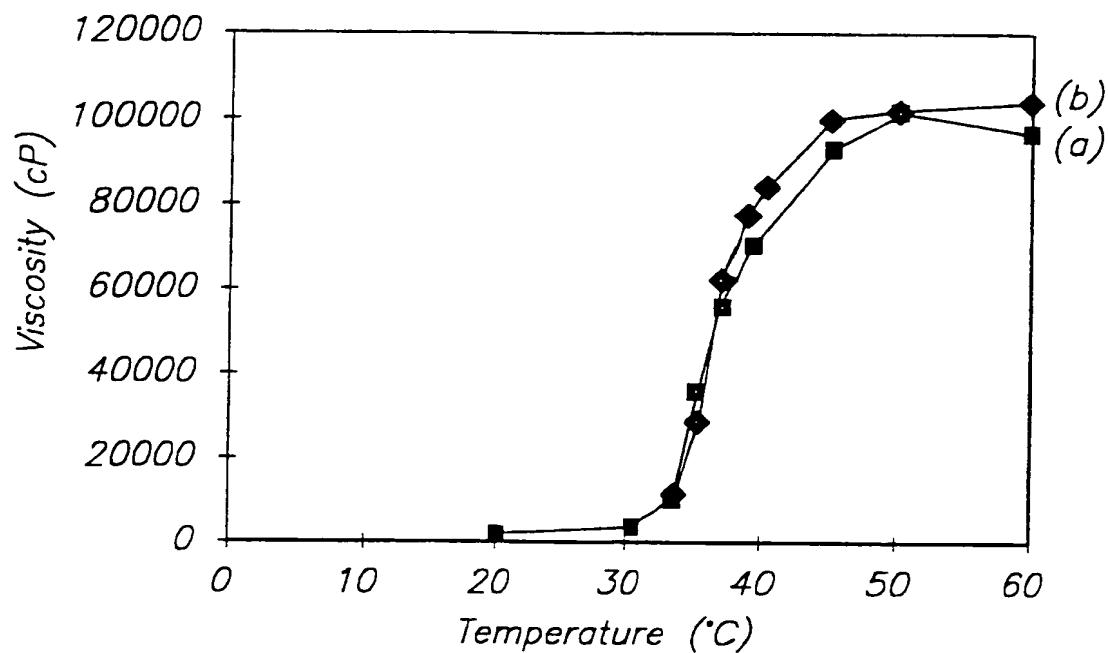


FIG. 20

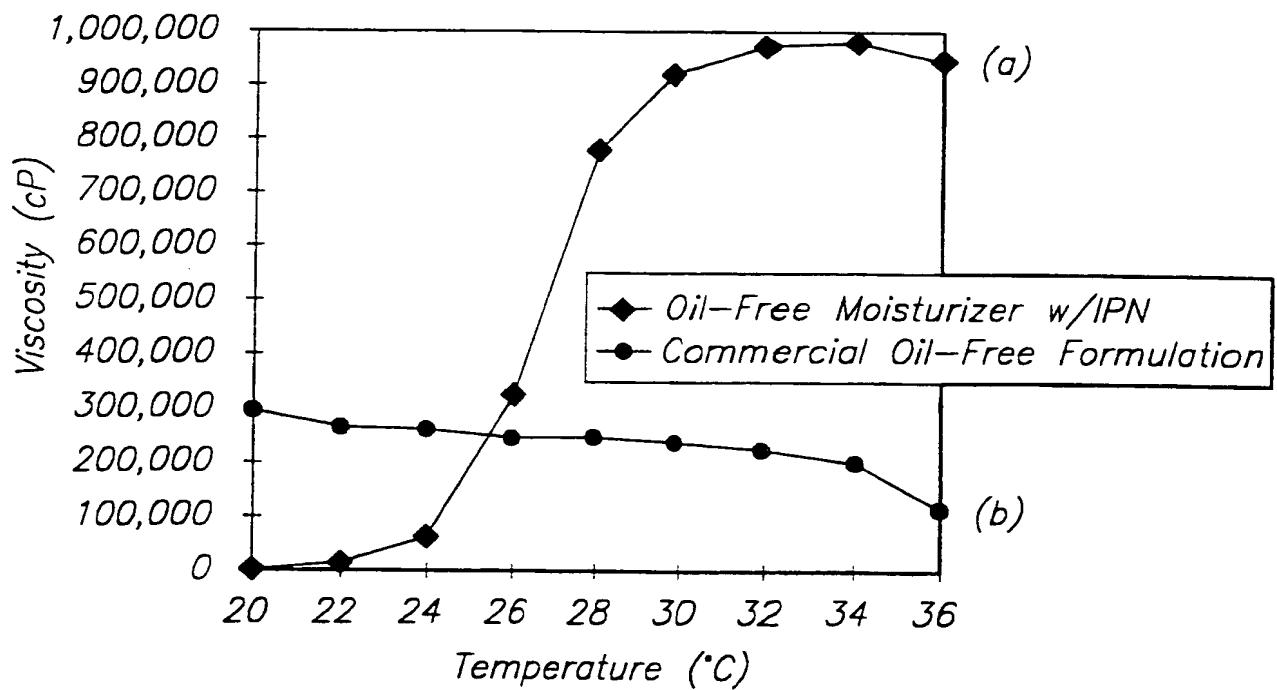
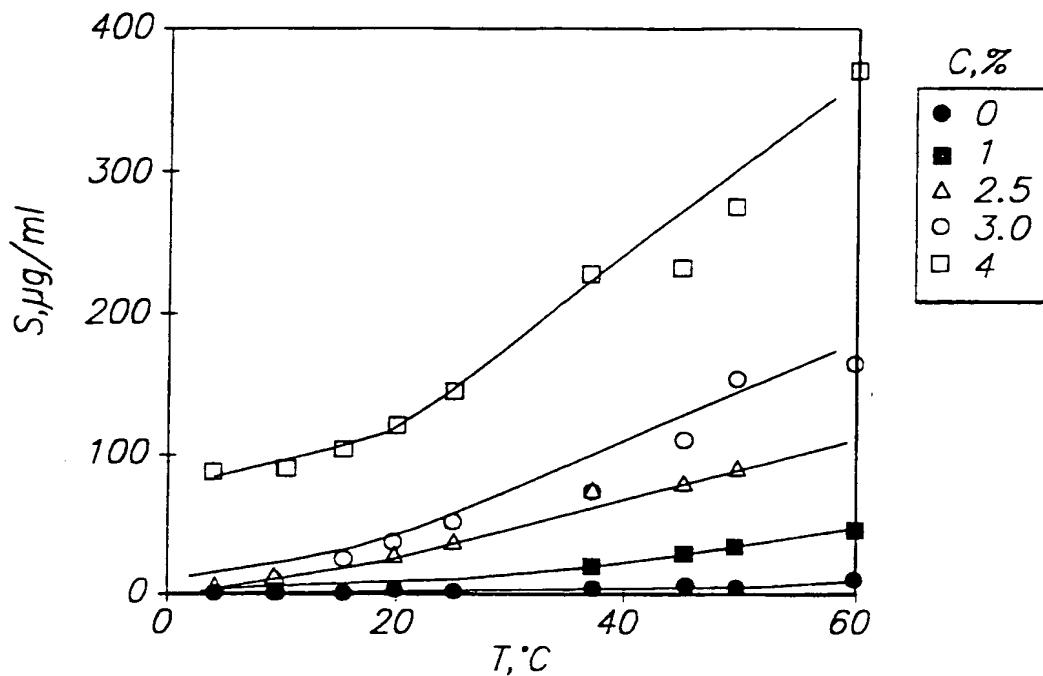
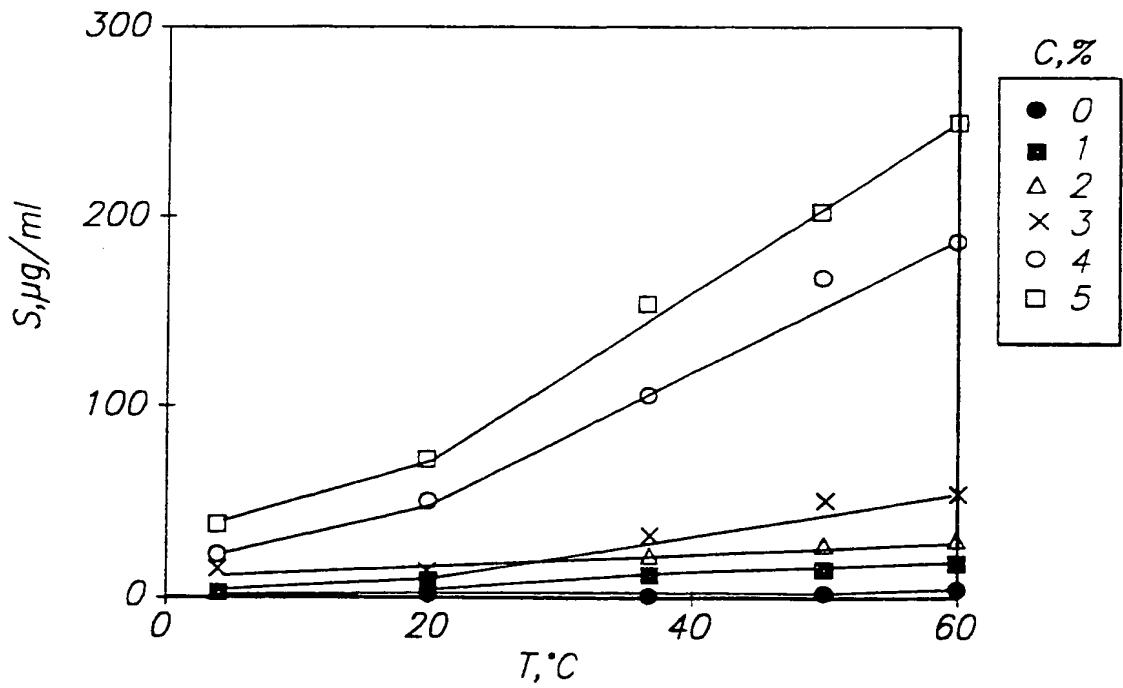


FIG. 21

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**FIG. 22A****FIG. 22B**

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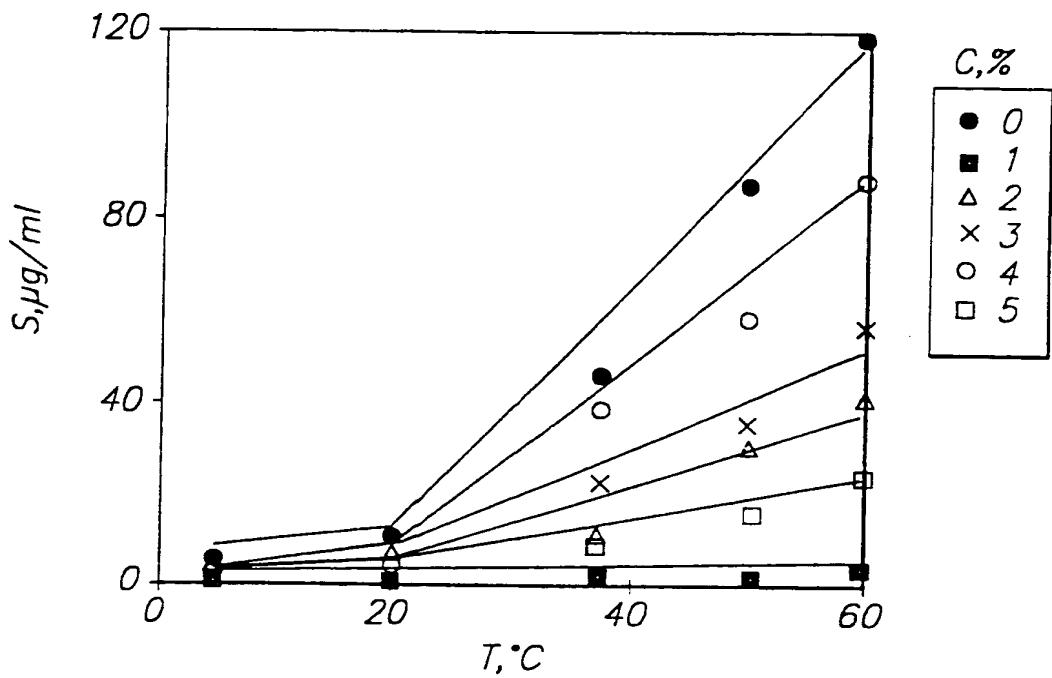


FIG. 22C

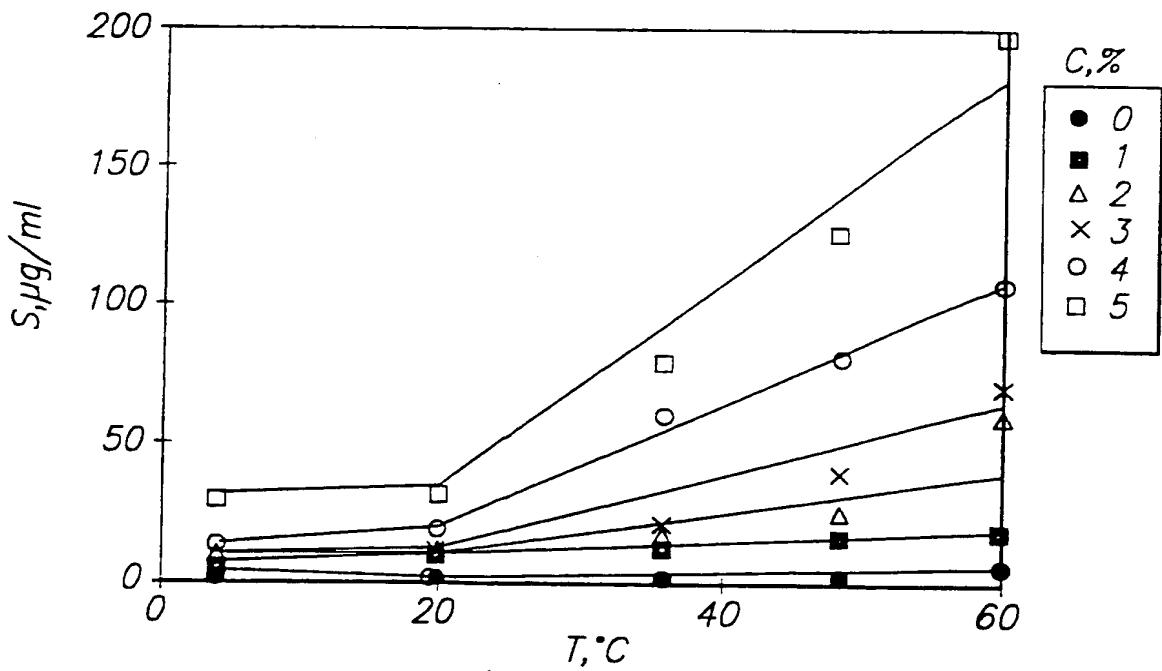


FIG. 22D

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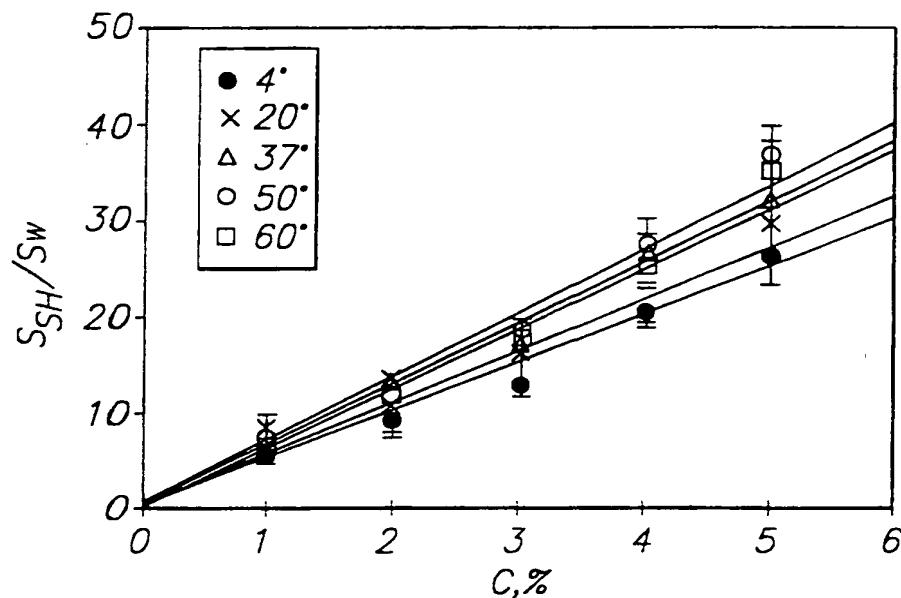


FIG. 23

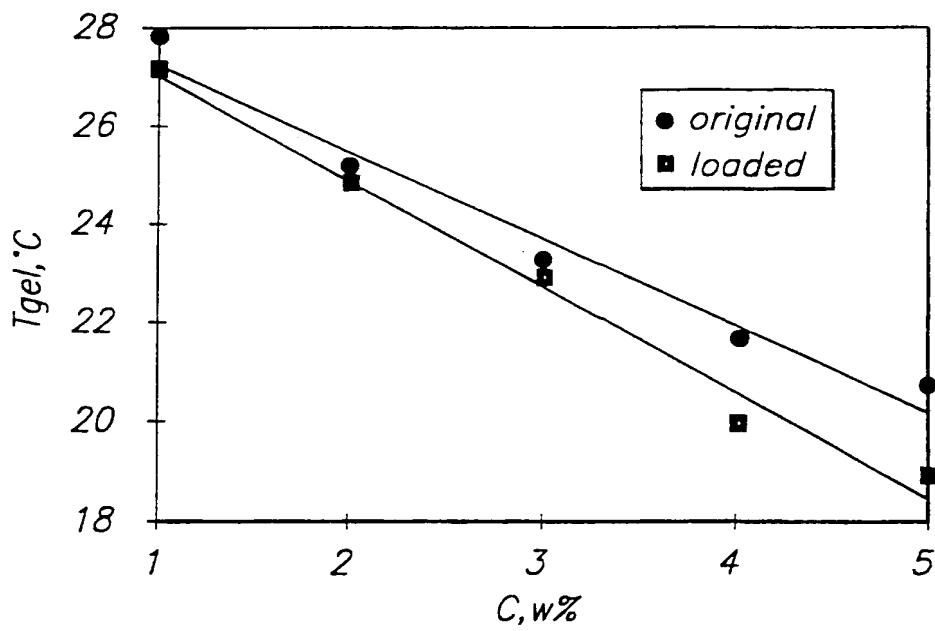


FIG. 24

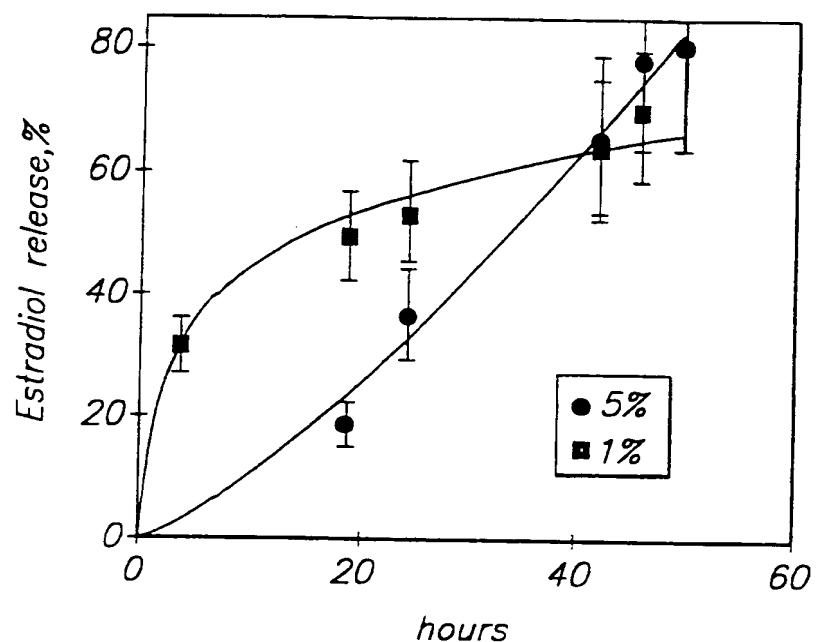


FIG. 25A

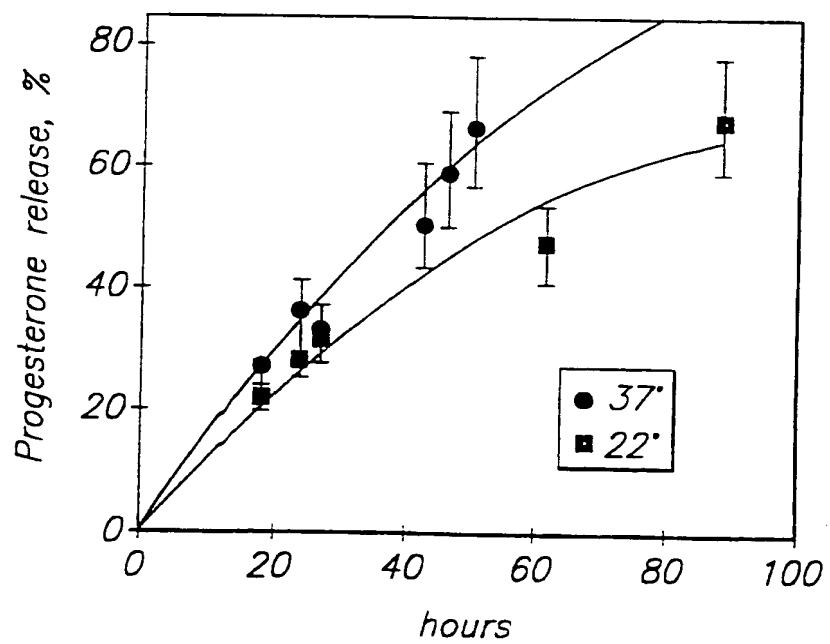
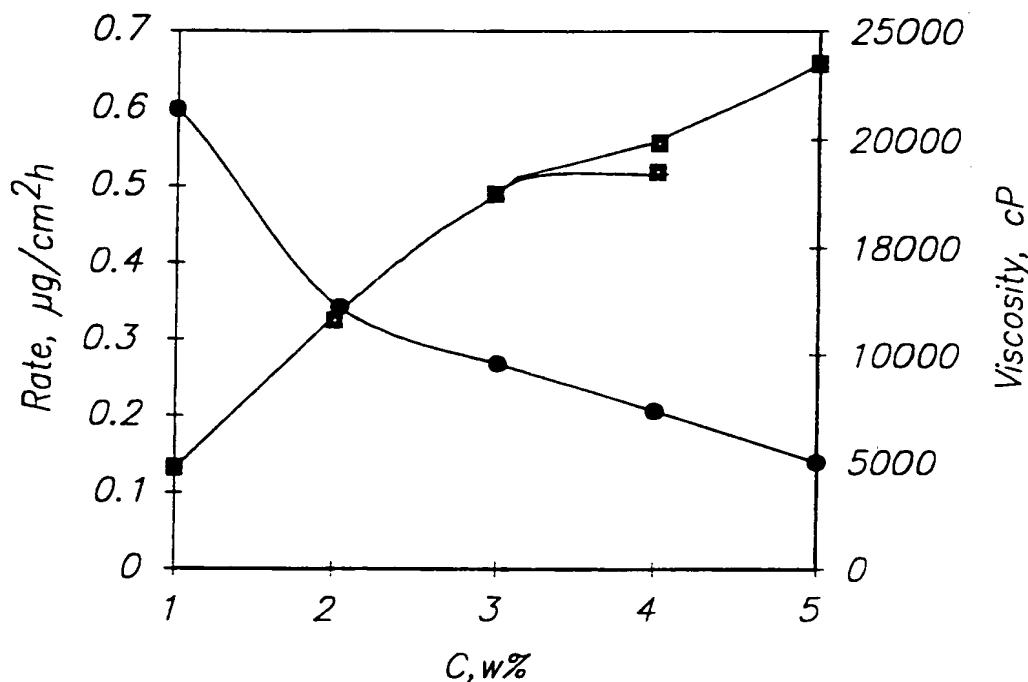
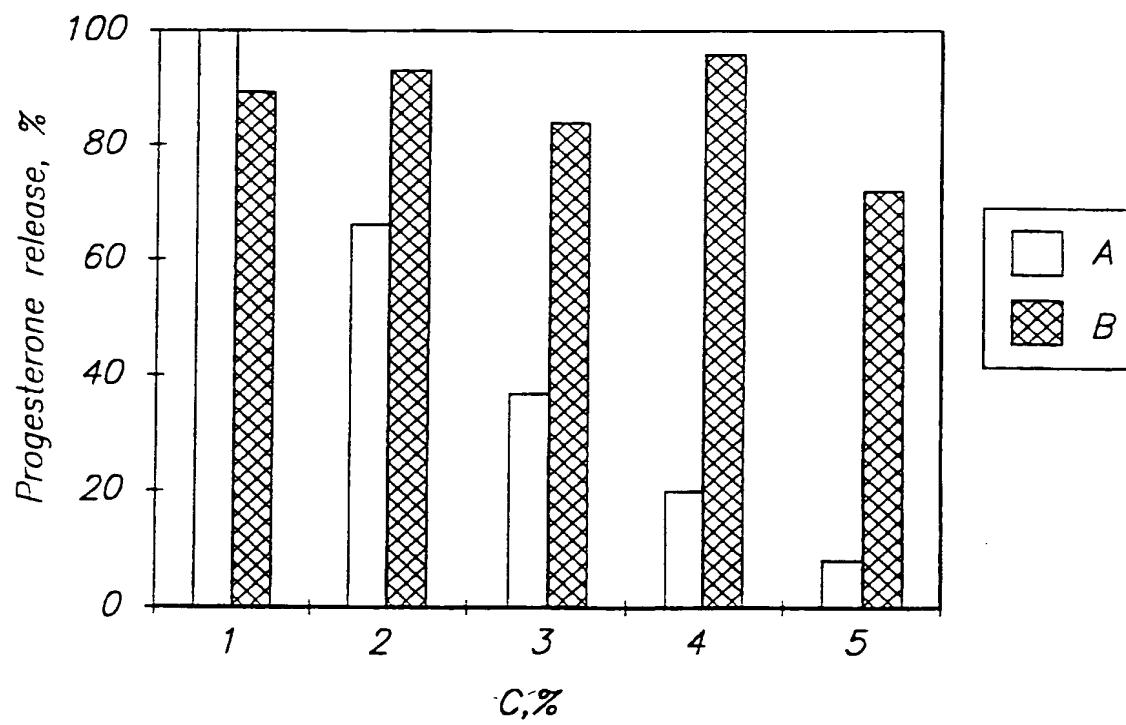


FIG. 25B

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**FIG. 26****FIG. 27**

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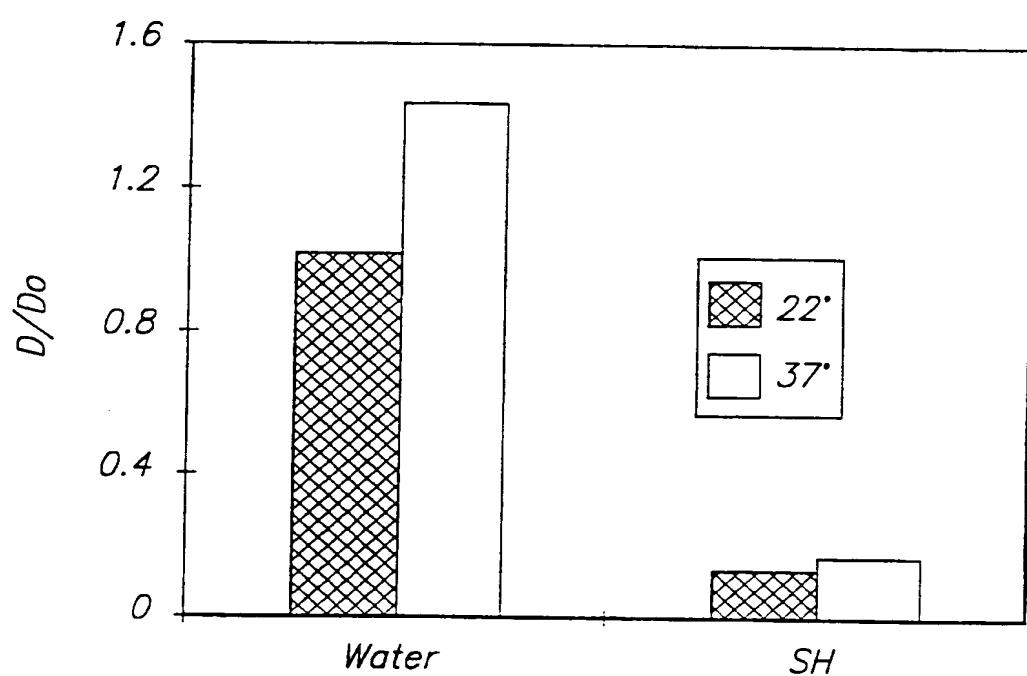


FIG. 28

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/08931

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : A61K 7/00, 7/021, 7/025, 7/06, 7/09, 7/16, 7/32, 7/42, 31/74

US CL : Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/49, 59, 63, 64, 65, 70.1, 70.2, 70.7, 78.02, 70.08, 400, 401, 405

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONEElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
APS: COSMETIC, POLYACRYLIC ACID, POLYMER NETWORK, POLOXAMER**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, P	US 5,662,892 A (BOLICH, JR. et al.) 02 September 1997, see entire document.	1-38
Y	US 5,106,609 A (BOLICH, JR et al.) 21 April 1992, see entire document.	1-38

Further documents are listed in the continuation of Box C.

See patent family annex.

-	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"I."	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Z"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

03 AUGUST 1998

Date of mailing of the international search report

02 OCT 1998

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

SHELLEY A. DODSON

Telephone No. (703) 308-1235



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/08931

A. CLASSIFICATION OF SUBJECT MATTER:

US CL : 424/49, 59, 63, 64, 65, 70.1, 70.2, 70.7, 78.02, 70.08, 400, 401, 405